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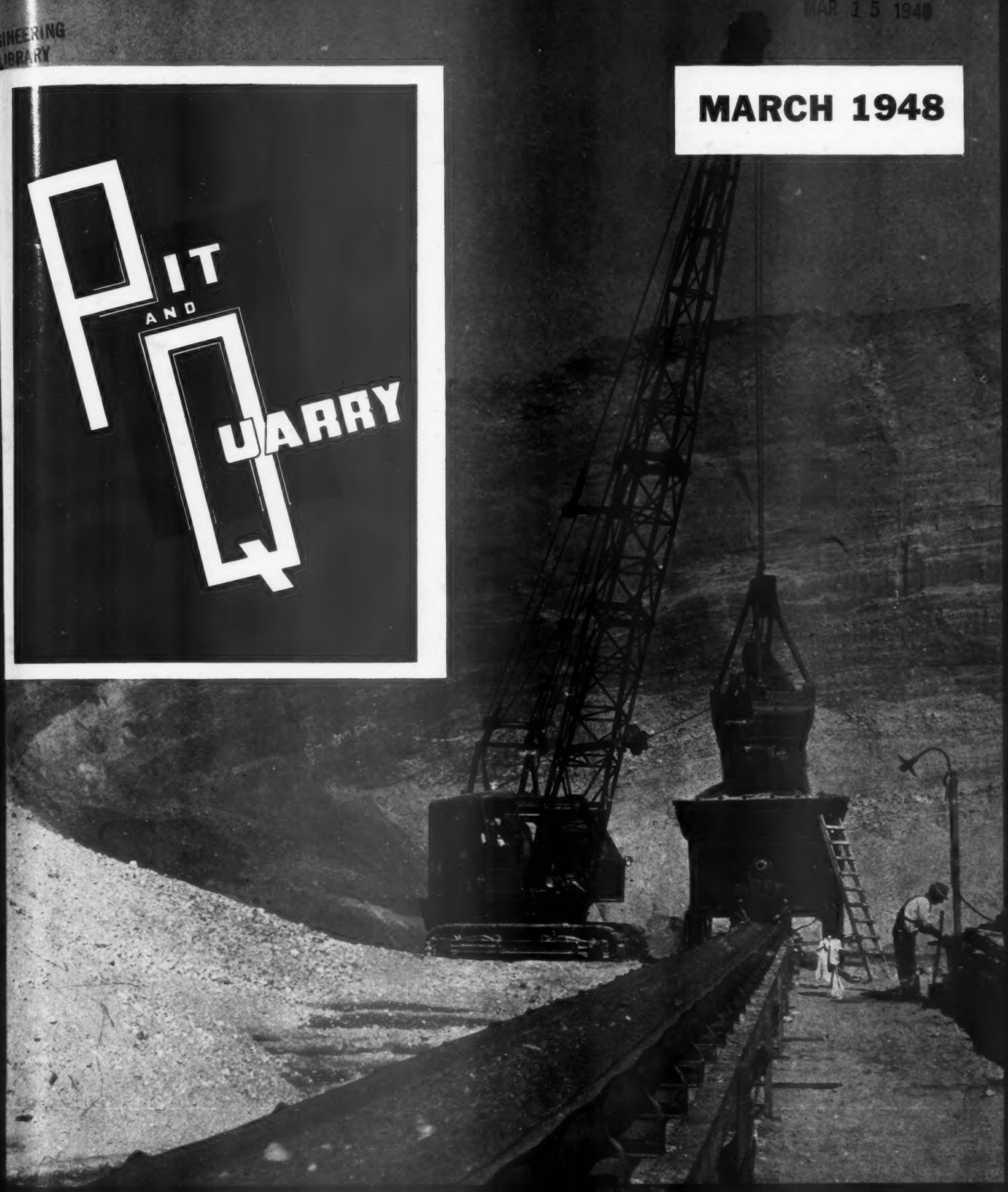
# PIT AND QUARRY

**MARCH 1948**



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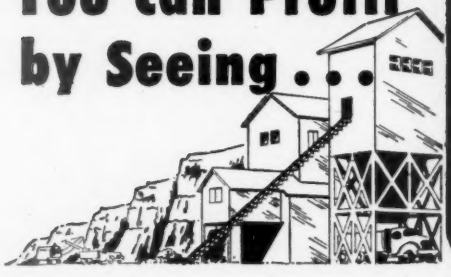
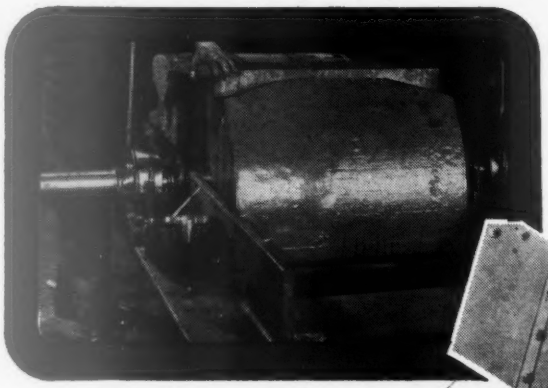


# Stone Age



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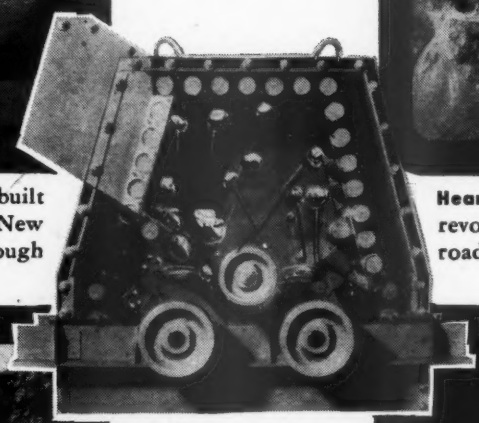
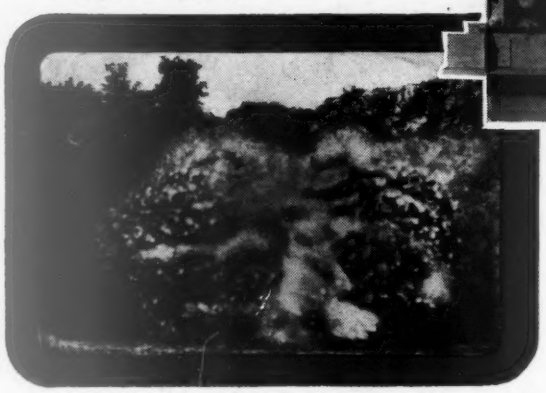
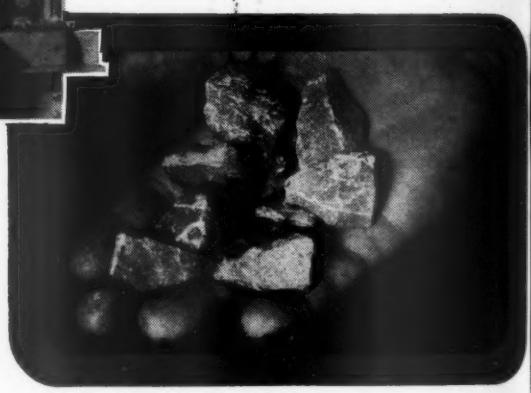
**Hear** what operators say about this revolutionary way to produce ag lime, road stone or *six different sizes at one time.*





**The** camera takes you inside a Double Impeller Breaker in *full action—*



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**Shows** how primary and secondary crushing in one operation results in less fines . . . lower power costs.

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DOUBLE IMPELLER *Breakers*

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# PIT AND QUARRY

MARCH 1948
Vol. 40 No. 9

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# CONTENTS

Editorial . . . . . 68
News of the Industry . . . . . 71
Thirty Years Ago in Pit and Quarry . . 76
Thirty-first Stone Convention and Show 78
Screenings . . . . . 87
Report of Agricultural Limestone Division's Third Annual Meeting . . . 88
Farm Plant Has Modernized Equipment 91
General Status of Cement Industry and Market in Mexico . . . . . 92
Callanan Slag and Material Company 93
Efficient Use of Compressed Air—Part II 95
Exhibit Views Taken at Cincinnati During Sand and Gravel Meeting . . 98
New Holliday Plant Runs Wet and Dry Operations on River-Bed Site . . . 100
3rd Annual Meeting of Natl. Lime Assn. Operating Division Held at Cincinnati 101
The Lime Plant Operator . . . . . 103

**The Concrete Manufacturer**

News of the Industry . . . . . 155
Pipe Plant Benefits from Parent Company's Services . . . . . 157
Curing and Merchandising Get Top Billing at Wisconsin Assn. Meeting . . 160
New Type Unit Promises Speed-Up, Economy . . . . . 163
Cincinnati Meeting of Ready Mix Assn. Elects C. "Dolly" Gray to Presidency 165
The Concrete Masonry Industry in 1948 172
1948 Classified Concrete Manufacturer's Machinery and Supply Directory . . 173

Personal Mention . . . . . 107
Obituaries . . . . . 108
New Machinery . . . . . 111
Trade Notes . . . . . 123
Legal Decisions . . . . . 130
Traffic News . . . . . 133
Index to Advertisers . . . . . 254

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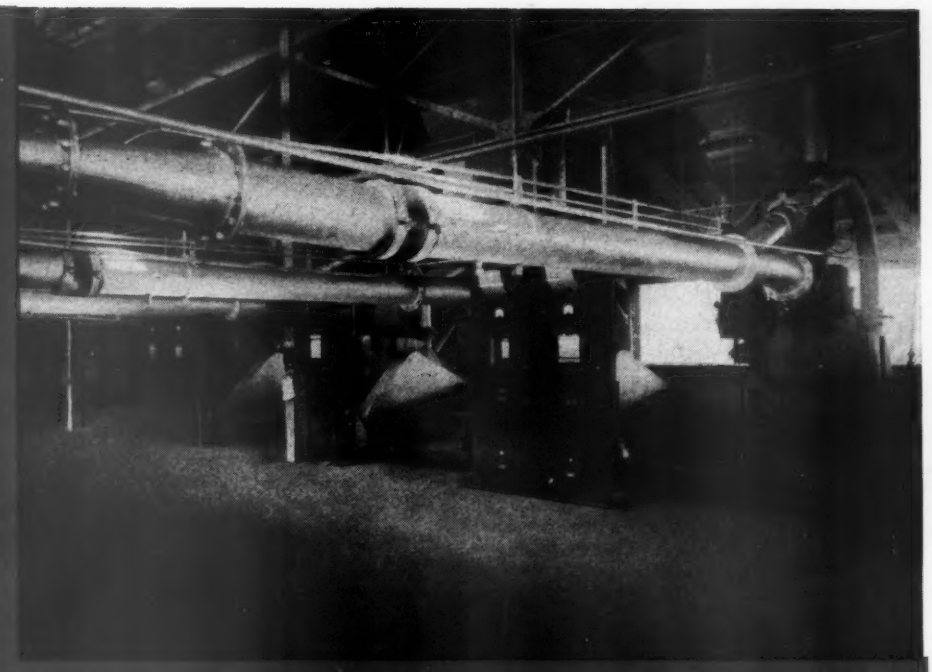

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# EDITORIAL

## *The New Look in Pit and Quarry*

As our readers will see after they turn over a few more pages, something new has been added to PIT AND QUARRY, beginning with this issue. Perhaps "the new look" is not accurately descriptive, as nothing radical is being done; we are attempting only to make our paper a little more attractive in appearance through the judicious use of artistic layouts and typography. This is in line with the post-war trend toward streamlining for better appearance and greater efficiency. It has been done by many general magazines but few technical or trade publications have made serious efforts in this direction. We can assure our readers that this improved appearance in PIT AND QUARRY is not mere "window dressing". Unlike the new look in fashions, it is not meant to hide things but to help bring them to light more effectively and attractively. Also unlike the new fashions, it is not a change for change's sake but, in our opinion, a definite forward step in trade paper publishing practice. Our editorial policy remains unchanged—to provide the latest and most important information of all kinds of direct interest to nonmetallic minerals producers in the conduct of their businesses.

The dressing up of these pages is not a new idea; it was definitely in our plans when World War II broke out and shortages of paper, artists, help, etc., developed. When the war ended, these shortages became even worse and our own efforts were devoted largely to bringing PIT AND QUARRY back to and above pre-war standards in every way and rebuilding our depleted editorial staff Now, with good writers and experienced staff members again on hand to write on a variety of important subjects, and with good coated paper stock again available, we feel that the new improved appearance brings PIT AND QUARRY much closer to our ideal of what it should be. Our efforts can now be devoted chiefly to further improving the contents and giving our readers the best of everything.

## *Labor Relations, Productivity and Wage Incentive Plans*

One of the most encouraging things about our present economy is the amount of study and discussion being devoted to the subject of labor relations. Employers are making more effort to get along with their employees, due partly to the shortage of competent help, but also, we are sure, to a growing realization that in this direction only lies industrial peace and prosperity. Industry is also greatly perturbed by the fact that, while wages and prices continue to spiral upward, the output per man-hour has decreased in some industries and has not shown the general steady increase which we have come to regard as a part of our industrial picture and the main reason for our high standard of living.

This "leveling off" in the productivity of labor is more and more being regarded as one of our chief economic problems, and one which must be corrected if we are to prevent further inflation and the depression which must surely follow. It is obvious that, as long as labor productivity remains constant, any increase in labor costs must inevitably be followed by commensurate price increases, etc. Only by increasing the productivity of labor is it possible for management to pay labor a higher percentage of the profits made than is now the case.

There seems to be no doubt that management must find a way to reduce labor costs without reducing wages. This must, under present conditions, be done without touching direct money wages or the various fringe benefits which have become accepted as labor's due. It is the hidden costs for which there is no item on the profit-and-loss statement, which can and must be reduced. These costs, which are now being added on to nearly everything we produce, are attributed by many of us to the various shortcomings of employees. This is undoubtedly partly true, but management is at least equally responsible, having bungled its job in many ways.

Over a period of years the one thing that seems to have worked effectively in promoting labor relations is the wage incentive, where intelligently applied. This fact is emphasized by a new study of wage incentives recently published by the U. S. Bureau of Labor Statistics. This points out that: (1) Workers on incentive plans earn 5 to 40 percent more than time workers; (2) About 30 percent of all plant workers in manufacturing are on incentive or piece rates. Such plans are most common, it is pointed out, in the apparel, textile, metal-working, cigar making, and other similar industries where piece-work rates can be practically applied.

At about this time each year we also read with mixed feelings the report for the preceding year by the Lincoln Electric Co. of Cleveland, Ohio, probably the outstanding example of what can be done with a wage incentive plan. Other companies have, for short periods, achieved more spectacular results, but here is a plan which has worked successfully for 14 years to the benefit of the worker, the employer and the consumer. James F. Lincoln, president of this company and leading exponent of the wage-incentive plan, a few weeks ago distributed $3,800,000 to 1155 fellow workers as their share of the profits for 1947; this means that employees received checks which in most cases exceeded their yearly take-home pay.

Quoting Mr. Lincoln, "If all companies would adopt a plan similar to the one under which we operate, rising prices would be halted and the threat of run-away inflation would be eliminated. There would not be any possibility of a need for government price controls . . ."

"Some system, such as ours, of appraising and rewarding men's performance and of keying that performance to low-cost production and then passing the resulting economics on to the consumer in lower prices must be adopted by industry in general if we are to stabilize our economy and secure industrial peace."

It can be argued, of course, that wage incentive plans, of the types employed by the company and industries mentioned above, cannot be applied as readily or effectively to the nonmetallic-mineral-producing industries. These industries, for example, are largely seasonal and the work is of such a nature that it is difficult, even impossible, to measure the productiveness of the worker. This is partly true; many of these industries are seasonal in varying degrees but producers are, in growing numbers, providing year-'round work for most of their employees, doing maintenance, repairs and other important work. As to the applicability of incentive plans to these industries, it is being done successfully by a number of the more progressive companies in this field.

Walter E. Trauffer

# news of the industry

PIT AND QUARRY

## Simplot Buys Salt Lake City Kalunite Plant in Move to Expand Phosphate Empire

Another indication of the importance of current plans for the large-scale development of phosphate resources in the Idaho-Utah area was seen in the announcement of the purchase of the huge Kalunite plant at Salt Lake City which will be used for the processing of phosphate by J. R. Simplot. Acquisition of these facilities will add ammoniated sulphate and triple superphosphate to the Simplot line. The superphosphate will have an available plant food content of approximately 48 percent.

The Kalunite plant, said to have cost $4,500,000, plus its 80-acre site, was purchased for $752,000, a figure which, however, will be considerably augmented by the addition of much new machinery and equipment. It is reported that between $500,000 and $700,000 will be spent to remodel the Salt Lake City plant.

Another Simplot phosphate venture, begun at Pocatello, Ida., in 1944, now represents an investment worth at least $1,000,000.

## National Lime Association To Hold 30th Annual Meeting

The 30th annual convention of the National Lime Association and the 45th annual meeting of the lime industry will be held at The Homestead, Hot Springs, Va., on April 5, 6, and 7, 1948. The board of directors of NLA will meet at the same place on April 4.

Included in the convention program are the following: a research session at which time reports will be made by the various universities and institutions having National Lime Association research fellowships; a trade waste-road stabilization session, with several speakers on these two interesting prospective markets for lime; a general session, with addresses on operating problems and varied subjects.

Each year the number of lime manufacturers' wives attending the convention increases. This trend is expected to continue for this year. An association bingo party will be held one night with special prizes for the ladies; this event will be followed the next night by the annual banquet.

## Coming Events

*March 4-5,1948 — Chicago.* Sixth annual convention and short course, Wabash Valley Ready Mixed Concrete Association, Stevens Hotel.

*March 11-13, 1948—New Orleans.* 40th annual convention, American Concrete Pipe Association.

*April 5-7, 1948—Hot Springs.* Annual convention, National Lime Association, The Homestead.

*May 12-14, 1948—Hot Springs.* Annual meeting, National Industrial Sand Association, The Homestead.

*June 4, 1948—Chicago.* Directors' meeting, Agricultural Limestone Division, National Crushed Stone Association, Edgewater Beach Hotel.

*July 8, 1948—Hot Springs.* Directors' meeting, National Crushed Stone Association, The Homestead.

*July 16-24, 1948—Chicago.* Annual convention and road show, American Road Builders Association, Soldiers Field.

*September 20, 1948—Colorado Springs.* Directors' meeting, National Ready Mixed Concrete Association, The Broadmoor.

*September 22, 1948—Colorado Springs.* Directors' meeting, National Sand and Gravel Association, The Broadmoor.

## Charles Baumberger Sr., Pioneer Cement Executive, Dies at San Antonio, Tex.

On January 15, 1880, in San Antonio, Tex., an ambitious drug store bookkeeper of 17 took on the books of a struggling cement company, and thus began the association of Charles Baumberger Sr. with the Alamo Roman and Portland Cement Co. (later the San Antonio Portland Cement Co.), an association which ended on Jan. 15, 1948, with his death.

During these 68 years Mr. Baumberger rose to the presidency of the firm, a position which he held until the time of his unexpected death. He saw the facilities of his firm grow from the original layout—a few small wooden buildings, a plot kiln, one jaw crusher, a pair of rolls and a small vertical French burr mill—to the present modern plant at Cementville, Tex., with its annual output of over 1,500,000 barrels.

As to Mr. Baumberger's personal career with the company, he served from 1880 to 1884 as bookkeeper, after which he became manager. In 1890 he assumed, in addition, the duties of secretary. When George H. Kalteyer, the firm's president, died in 1897, Mr. Baumberger was named to succeed him. To the last, he took an active part in directing and supervising the company's development into one of San Antonio's largest industries. He made it a practice to be at the plant six days a week in order to keep in touch with the progress of the business he had helped to found. Death came suddenly to him just 68 years after he had joined his fortunes with the Alamo company.

(Readers will recall that the February, 1948, cover of PIT AND QUARRY carried a picture of the old pot kiln originally used by the Alamo company. The kiln is located in what is now Brackenridge Park, one of San Antonio's most beautiful recreational areas.)

Road aggregates or gravel used to reinforce asphalt are made more water-repellent by compounds of the amino group and silicon.

## Dravo Corp. Produces Motion Picture Depicting River Sand-Gravel Industry

Dravo Corporation's Keystone Division has completed a motion picture depicting the production and distribution of river sand and gravel. The title is *The Story of River Sand and Gravel.* While operations shown are those of Dravo Corporation the picture itself is more or less representative of the sand and gravel industry in the Pittsburgh area. Narration is in simple style and there are no "technical explanations." The average audience can readily understand what is being done and how.

The picture starts aboard a dredge in the Ohio River and the complete dredging operation is shown, ending with the loading of aggregates into waiting barges. In the transportation sequence, the picture shows the Diesel towboat *Keystone* working its way upstream with a tow of nine barges. There are detail views of just how a towboat and tow navigates a lock.

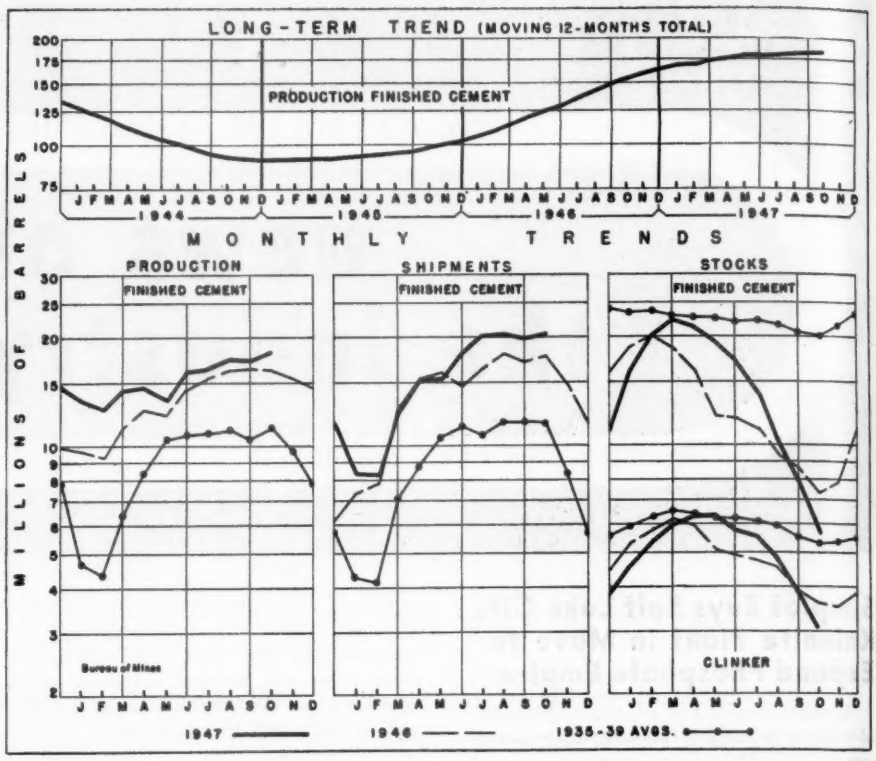
Several distribution plants in the Pittsburgh area are shown and a trip is made through one of them. A ready-mixed concrete truck goes out to a contractor with its load. The picture ends with views of many well known structures in which river sand and gravel are used.

• O. J. Ellertson, right, export manager, Pioneer Engineering Works, Minneapolis, Minn., discusses with E. Raoul Ruffo, engineer from Mexico Tractor and Machinery Co., S.A., Mexico City, the certificate of appreciation received by Pioneer for the company's contribution to the training of Latin American engineers. The award was made by the American Road Builders Association on behalf of the Inter-American Highway Engineering Conference sponsored by A.R.B.A. with the cooperation of the Department of State, the Public Roads Administration, the Office of Inter-American Affairs and the Pan-American Highway Confederation.

## Norway Limestone Deposits Contain Supply for 1,000 Years

Norwegian limestone deposits at Eide in Nordmoere are estimated to contain 800,000,000 tons, or enough to supply Norwegian industry for over ten centuries at the present rate of consumption. Development of these deposits is relatively simple, as the stone lies very close to the surface and in many instances the workings are within a stone's throw from the sea.

It is expected that the Eide district will develop into a large-scale industrial center with the completion of the Aura Hydro-electric project nearby. Even at the present time a number of smaller limestone pits are now in operation, with a total yearly production of from 50,000 to 60,000 tons.




Production of 18,300,000 barrels of portland cement in October, 1947, reported to the U. S. Bureau of Mines, was 12 percent greater than that reported for October, 1946. The October output represents the largest single month's production by the portland cement industry, topping the October, 1942, peak of 18,293,000 barrels by 7,000 barrels. Mill shipments reached 20,562,000 barrels, a figure 16 percent above that reported for October, 1946, and is exceeded only by the record of 21,282,000 barrels shipped in August of 1942. This record output did not meet demands; therefore stocks continued to decline and on October 31 stood at 5,659,000 barrels, a decrease of 22 percent below that reported for October, 1946.

The percentage of capacity utilized in October, 1947, was 90 and represents the closest approach to total capacity ever achieved in one month by the industry.

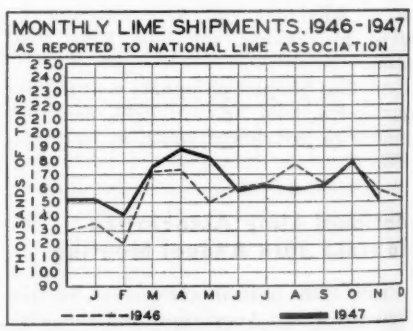
The long-term trend in production of finished portland cement is indicated in the accompanying chart. Monthly production, shipments, and stock trends compared with the 1935-39 average, are also indicated graphically.

## Mississippi Lime Company Buys Three Missouri Plants

Three lime plants in Missouri—the Ste. Genevieve Lime Works and the Peerless Lime Co. at Ste. Genevieve and the Glen Park Glencoe Lime Co. at Sulphur Springs, Mo.—were reported to have been sold to the Mississippi Lime Company of Alton, Ill.

The consideration for the three properties was said to have been $1,100,000, the sale having been made to close the Carl Kamman estate, former owners.

Plans are reportedly being discussed for stepping up the output of the Eerste Nederlandsche Cement Industrie at Maastricht, Holland, the largest cement plant in that country. Production is expected to reach 600,000 tons annually.




According to data collected by the National Lime Association, 44 companies in November, 1947, shipped 151,944 tons of lime (91,069 quicklime; 60,875 hydrate). Reporting companies represent 47.9 percent of the association members' total capacity of record. Based on Pit and Quarry's estimates for the remainder of the industry, the total shipments for the month by all plants were approximately 330,600 tons. Shipments by uses and grades for November, 1947, were:

| | Quicklime (tons) | Hydrate (tons) |
|---|---|---|
| Agricultural | 1,020 | 4,429 |
| Building | 11,556 | 33,058 |
| Chemical | 78,493 | 23,388 |
| Totals | 91,069 | 60,875 |

## Russell Rarey Succeeds W. H. Hoagland as Head Of Marble Cliff Quarries

The following changes in the personnel of The Marble Cliff Quarries Company, Columbus, O., have been announced:

H. J. Kaufman, chairman of the board; Russell Rarey, president; E. J. Kaufman, vice-president; Robert H. Pausch, secretary-treasurer; U. C. Kaufman, assistant treasurer. Mr. Rarey succeeds W. H. Hoagland, who was for many years president and more recently chairman of the board of directors. Mr. Hoagland retired from active service on January 15, but will retain his place on the board. The above officers, Stephen Stepanian and F. A. Miller constitute the new board of directors.

Russell Rarey

## New Division Organized by Hewitt-Robins in New York

A new division, Robins Engineers, has been organized by Hewitt-Robins, Incorporated, to handle the contracting phases in the design, engineering and installation of complete materials-handling and processing plants, President Thomas Robins Jr. has announced.

The 50 engineers assigned to the new division formerly were associated with the concern's Robins Conveyors Division, pioneer company in the manufacture and installation of heavy-duty belt conveyors. Robins, since its formation 56 years ago, has furnished, and currently is furnishing, long-life, high-capacity belt conveyor transportation systems and has pioneered substantially all important improvements made in that field.

Harold Von Thaden, who joined Robins Conveyors 25 years ago, heads the new division as vice-president. Elmer C. Salzman, with the company for 36 years, will be vice-president in charge of sales, and R. W. Eichenberger, with 38 years service with the company, will be vice-president in charge of the Midwest office in Chicago.

In annnouncing the formation of the new Division, which will have its headquarters at 157 Chambers Street, New York, Mr. Robins said:

"Hewitt-Robins has been increasingly called upon to provide for its customers highly-specialized services in the design and engineering of complete materials-handling and processing plants, extending beyond just the manufacture and sales of its own principal line of conveying and screening machinery. These services have included the selection and supplying of other important elements such as electric motors and controls, specialized machinery for the crushing, separating, measuring and weighing of the material being handled and processed, and heavy structures and buildings. In recognition of the growing importance of this engineering phase of our activities, and to continue improving this service, we have organized the Robins Engineers Division. The manufacture of materials-handling machinery and related components will continue to be handled by Robins Conveyors Division at Passaic, New Jersey.

## Medusa Portland Cement Co. Completes Dixon Improvements

Improvements under way at the Medusa Portland Cement Company's plant at Dixon, Ill., are scheduled to be completed early in March, according to an announcement from the Cleveland office.

Medusa officials stated that the firm had invested more than $2,000,000 in improvements throughout the United States, and that a large portion of this sum had been expended in streamlining the Dixon facilities.

## Bethlehem's Bridgeport Quarry Wins Second Safety Trophy

At an outing held by the officials of the Bethlehem Steel Company for 125 employees of the firm's Bridgeport (Pennsylvania) quarry, a group of men were honored for having won the Sentinels of Safety trophy in the quarry group of the National Safety Competition for 1946. The quarry employees had also won the trophy in 1945.

## Marblehead Lime Company Becomes Subsidiary of Material Service Corp.

The Material Service Corporation of Chicago has entered into an agreement for the acquisition of the Marblehead Lime Company, which dates back to 1872. The latter firm is to be operated as a subsidiary of Material Service under its present management, with Wallace E. Wing as president.

The purchase of the Marblehead Lime business gives Material Service its second major subsidiary, the first being the Freeman Coal Mining Corporation of Herrin, Ill., which was acquired early in 1946. Other operations of Material Service include ownership of the entire capital stock of the Stearns Lime and Stone Company, the Burlington Quarries Corporation and the Howard-Matz Brick Company, and all of the common stock of the Thornton Quarries Corporation. All of these companies were merged into Material Service.

Marblehead Lime Company produces high calcium and magnesium lime. Its plants are located in the south Chicago district, in Marblehead, Thornton, and Quincy, Ill., and in Hannibal, Mo.

## From Gold to Asbestos— Old Mine Has Rich Deposit

White River, 15 miles south of Porterville, Calif., which was a center for gold mining at the turn of the century, will soon be the scene of asbestos mining operations of the Pacific Coast Asbestos Co. Plans call for installation of a mill and other equipment capable of processing 60 tons of asbestos ore per day. The ore deposit has been traced at an average width of 60 feet for a distance of 5 miles. Exploration holes indicate a possible vein of several hundred feet. This fact is borne out by asbestos showings in ore taken from below 700 feet on the dump of the old Eclipse gold mine.

H. H. Records, R. B. Records and S. Washer, who are at White River to superintend the construction of the mill, say that two types of asbestos are to be found in the area: mass fiber and slip fiber. They plan to ship by rail and truck. It is estimated that within six months the plant will operate on a 24-hour basis.

• Officials of Bethlehem's Bridgeport quarry and their safety trophy.

## Tentative Program for the 30th Annual N. L. A. and 46th Lime Industry Meeting

MONDAY, APRIL 5, 1948

10:00 a. m. Meeting called to order by H. D. Brigstocke, chairman of the board
Minutes of annual meeting, 1947
Association financial report
Appointment of committees
Report on election of directors

GENERAL SESSION

10:30 a.m. General manager's report by Robert S. Boynton
10:45 a.m. Operating subject (Topic and speaker to be announced later)
11:45 a.m. "Current Legislation and Court Decisions" by Abram F. Myers, counsel, Washington, D. C.
12:00 m. Walter J. Murphy, editor of Industrial and Engineering Chemistry, Washington, D. C.
1:00 p.m. Meeting of newly elected board of directors
Monday afternoon—open
Monday evening — Association bingo party with special prizes for ladies.

TUESDAY, APRIL 6, 1948

10:00 a.m. Association budget for fiscal year
Reports of committees
Safety announcement by Roma M. Turpen, secretary
Ratification of officers for 1948-49
Other business

TRADE WASTE—CONSTRUCTION SESSION

10:30 a.m. "Federal and State Stream Pollution Legislation" and film "Clean Streams" by C. E. Schwob, sanitary engineering director, U. S. Public Health Service, Washington, D. C.
11:15 a.m. "Industrial Waste Treatment" by E. F. Eldridge, professor of sanitary engineering, Michigan State University, Lansing, Mich.
11:45 a.m. "Lime — Soil Stabilization in Texas" by Chester McDowell, senior soils engineer, Texas Highway Department, Austin, Tex.
12:15 p.m. "Building Lime in Sweden" and movies on "Ytong and Stabilite" (Swedish Lightweight building blocks) by Sverre Fjeldstad, engineer, Ytong Stabilite Company, Sweden
Tuesday afternoon—open
Tuesday evening—Cocktails—annual association banquet—entertainment and dancing.

WEDNESDAY, APRIL 7, 1948

RESEARCH SESSION

Professor Walter C. Voss, head of building engineering and construction, Massachusetts Institute of Technology, Cambridge, Mass., presiding.

10:00 a.m. Opening remarks by Professor Voss
10:15 a.m. Agricultural fellowship report by Dr. Garth W. Volk, chairman, department of agronomy, Ohio State University, Columbus, O.
10:45 a.m. Trade waste fellowship report by Dr. Willem Rudolfs, professor, department of water supply and sewage disposal, Rutgers University, New Brunswick, N. J.
11:15 a.m. "Road Stabilization" by A. W. Johnson, field engineer, Highway Research Board, Washington, D. C.
11:45 a.m. "Report on Fundamental Lime Research Fellowship" by Associate professor James A. Murray, Massachusetts Institute of Technology, Cambridge, Mass.
12:15 p.m. "The Control of Corrosion by the Use of Lime" by Edward S. Hopkins, associate engineer, Bureau of Water Supply, Baltimore, Md.
12:45 p.m. Adjournment

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## Dismantling of German Plants Will Prevent Reconstruction

It was recently revealed that the French occupation zone authorities refused to drop from their dismantling program the Neuwied cement and pumice works. These facilities in pre-war days produced 300,000 tons of cement per year and afforded employment for 20,000 persons in its pumice works.

Removal of the cement works from Neuwied and the Coblenz area, it was said, will prevent rebuilding of bombed-out sections there.

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## Film on Soil Improvement Features Dr. W. A. Albrecht

Dr. William A. Albrecht, head of the Soils Department of the University of Missouri, who is well known in agricultural limestone circles as a contributor to PIT AND QUARRY, is featured in a new 16mm Kodachrome sound motion picture, *The Other Side of the Fence,* recently released by Phillips Petroleum Company.

In the film Dr. Albrecht appears and discusses the story of soil and its relationship to the health and well being of everyone. *PhilFarmer,* published by the Phillips Petroleum Company, offers this "PhilFarmer Feature" to any interested groups. Information will be supplied by Roy Cunningham, editor, Bartlesville, Okla. Extremely favorable comments have been received on the film from such groups as veterans' training units, vocational agricultural classes, schools and government agencies.

Dr. William A. Albrecht

## E. R. Murphy Succeeds Watts as Staff Director of Vermiculite Organization

An interesting development in the vermiculite industry has taken place recently: a change in both the name and managing directorship of the Vermiculite

Edward R. Murphy

Research Institute, Evanston, Ill. This organization will henceforth be known as the Vermiculite Institute. Edward R. Murphy succeeds Vilas E. Watts as managing director and executive secretary.

As the change in the name implies, the Vermiculite Institute will no longer be primarily concerned with research. Its functions will be the promotion of the use of vermiculite products nationally, co-operation with allied industries in the construction field, and the preparation of new literature and publicity. Mr. Murphy, a civil engineer, is well qualified for these duties. He comes to V. I. from the Gypsum Assn., where he was assistant chief engineer for over 12 years. Prior to that time, he was with the structural clay products industry code authority during N.R.A., and with the former Metal Lath Manufacturers Assn.

Research into the properties and possibilities of vermiculite will be continued by Mr. Watts, who is opening his own research laboratory in Palo Alto, Calif. While he will specialize in product development and improvement for other industries, a large portion of his time will be spent on vermiculite, with which he has worked for over eight years. Mr. Watts has been a research engineer since his graduation from college in 1924; first, with the California State Highway Research Laboratory, then with the American Bitumals Co., and finally with the Vermiculite Research Institute.

Mr. Watts was responsible for the new chemically-treated vermiculite concrete aggregate used in producing lightweight insulating concrete.

## Union Pacific R. R. Expands Its Carrying Capacity For Freight and Riders

The Union Pacific Railroad, because of its wartime experience and its continued faith in the further growth of the West, is about to launch a "rebuilding" program. Under the direction of President George F. Ashby and E. Roland Harriman, chairman of the Union Pacific board of directors, the road will undertake a $200,000,000 modernization program. This sum has been authorized for new equipment and fixed facilities to handle the increased flow of passengers, materials and finished products throughout the Midwest and West.

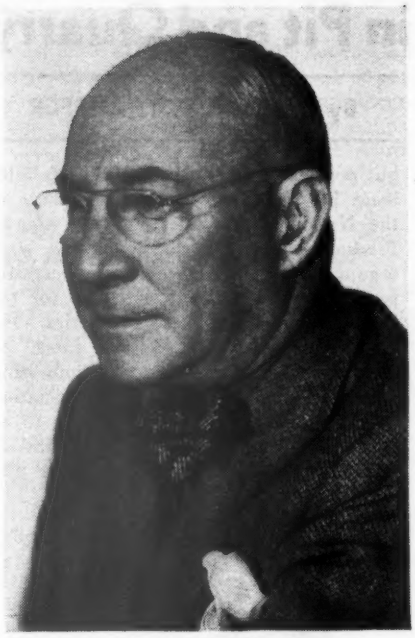
VJ-Day found the railroad which first linked the East and the West with the driving of the golden spike on May 10, 1869, ready with plans for a long-range program designed to protect the future of the newly industrialized and increasingly agriculturalized West.

At that time Mr. Ashby began placing orders for the additional freight, refrigerator and passenger cars which would be needed. He initiated a purchase program which will eventually result in complete dieselization of the road's entire main line from Salt Lake City to Los Angeles. Late in 1947 the Union Pacific had 262 diesel units, with a total horsepower of 358,980. It was then that Mr. Ashby made railroad history when he ordered an additional 181 diesel power units. With the delivery of these, the road will have 535 diesel units, which can furnish 750,000 horsepower.

Mr. Ashby also began a long-range construction program which has already produced a new freight classification yard at Pocatello, Ida. Plans have been made for another such yard in Nebraska. Among other purposeful moves made by Mr. Ashby was the order for the purchase of high-speed 133-lb. rail for use in a continuing program of track replacement. Complete approval of the steps already taken was assured when the Union Pacific's board of directors, meeting in Boise, Ida., during a recent inspection trip, voted to support the program and to add approximately $80,000,000 to the sum already spent or being spent.

According to the *Wall Street Journal*, "the Union Pacific (has) moved into its third era of construction. Over $101,000,000 (worth) of orders for new equipment alone have been placed by the road, with further substantial orders planned in the next few months. President George F. Ashby believes his modernization program will cost more than the original price of building the railroad." The *Journal* published a detailed account of the historic line's plans for improving its roadway, freight yards and other facilities.

Mr. Ashby, son of a Mt. Airy, N. C., wholesale grocer, learned in his father's business how to "buy on the market against other buyers." His railroading experience began in 1906 with the Atlantic Coast Line in Wilmington, N. C.



George F. Ashby

In 1911 he went to work for the Union Pacific as an accountant. Thirty-five years later, on February 1, 1946, he succeeded William M. Jeffers as president of the road.

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## New Grinding Mill to Double Sand Output at Ottawa, Ill.

According to an announcement made by George A. Thornton, vice-president of the Ottawa Silica Company, the firm will build a new grinding mill and possibly new offices at Ottawa, Ill. The present grinding plant is being dismantled, to be replaced by a new one near mill B which will reportedly double the capacity.

Incorporated in 1910, the firm during its first year of production shipped 150 cars (approximately 7,500 tons) of sand. Now, with demand at the peak, its six plants have a total output of approximately 1,000,000 tons per year.

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## Beg Your Pardon

We were wrong on two counts when we gave statistics for the National Gypsum Company's sales figures for 1946 and 1947. (PIT AND QUARRY, January, 1948, page 79.) We're sorry; we blame an incorrect source of information. For 1946 the figure should have been $38,000,000, instead of $21,000,000; for 1947, approximately $52,000,000, instead of $60,000,000.

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In charge of engineering and construction of a new $500,000 improvement project for the National Gypsum Company at Mobile, Ala., is the Blaw-Knox Company. The chemical plants division of Blaw-Knox will handle the project, which covers new equipment, improvements in processing and modernization of buildings.

## WAA Approves Sales of Amco Magnesium Quarry Site to D. H. Litter Co.

The War Assets Administration has approved the sale of the dolomite quarry site of the surplus Amco Magnesium Corporation plant, Wingdale, N. Y., to the D. H. Litter Company, Inc., New York City, for $275,000.

The sale terms provide for payment of 10 percent cash, the balance in 10 years in equal quarterly payments, plus interest at 4 percent, also payable quarterly. The purchaser also is to expend not less than $250,000 in improvements, buildings and processing equipment on the plant site within a year.

The property involved in the sale includes approximately 105 acres of the dolomite quarry site; all quarrying, crushing and utility installations located there; a tramway from the quarry site to the magnesium plant with a right-of-way for its operation; and a 20-acre portion of the magnesium plant site, about two miles distant. The portion sold had an original cost of $1,028,800 and an appraised fair value of $274,770.

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## Error Noted, Correction Made—So Sorry, Sir!

According to word from Li Lung-Han of the Taiwan Cement Corporation, Taipeh, Taiwan, China, PIT AND QUARRY editors unknowingly gave the Japanese an edge on the Chinese in the story of Formosan cement plants, December issue, pp. 83-89. Our informant has called our attention to the fact that throughout the article we used Japanese renditions for place names.

"They are all Chinese names," writes Mr. Li Lung-Han, "and the following corrections will serve to help PIT AND QUARRY readers to follow up subsequent development of the Taiwan Cement Corporation." He appends the following corrections:

| Chinese pronunciation | Japanese pronunciation |
|---|---|
| Taiwan* | Taiwan |
| Pingtung | Heito |
| Kaohsiung | Takao |
| Keelung | Kirun |
| Taipeh | Taihoku |
| Suao | Suo |
| Tsutung | Chikuto |
| Hsintsu | Shinchiku |

*The Portuguese name for Taiwan is Formosa.

Our apologies for the unintended display of favoritism. We stand corrected!

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## Safety Pays Off—to Employees Of Aetna Portland Cement Co.

At the annual safety meeting of the Aetna Portland Cement Company, held recently in Bay City, Mich., more than $1,000 worth of prizes were awarded to the company's employees.

President Ben W. Calvin announced that the awards were distributed to employees with long-time accident-free work records.

# Thirty Years Ago in Pit and Quarry

By WALTER E. TRAUFFER

THE months of January and February, 1918, were outstanding in the history of the aggregates industries as they marked the actual formation of the national associations for the crushed stone, sand and gravel and slag industries. The formation of these and many other national associations was given the necessary impetus by the expressed desire of the government to deal with industry as a whole, rather than with individuals, in dealing with highway and other problems connected with World War I. In a brief but pointed article in the February, 1918, issue E. Guy Sutton, then secretary of the National Assn. of Sand and Gravel Producers, stressed the need for such organizations not only for the successful prosecution of the war, but also for the future progress of these industries. PIT AND QUARRY furthered the cause by printing with this article a membership application blank for that association and a program of the convention to be held in Chicago on February 7 and 8.

The feature article in this issue told of the meeting at Columbus, Ohio, on January 16, of delegates from eight Midwestern states to form a national association of crushed stone producers. This meeting was hastily arranged so that a national body could be formed in time to be eligible for a place on the board of directors of the Highway Industries Assn., which was to be formed at Chicago on January 21. Among those present were the late E. J. Krause, C. E. Ireland, and the late A. J. Blair. The states represented were Illinois, Iowa, Indiana, Missouri, Michigan, Alabama, Wisconsin and Ohio. Appended to this article was a membership application blank for the National Crushed Stone Assn.

Also at Columbus on January 16 representatives of slag companies forming about 90 percent of that industry, met and formed the National Slag Assn. It had been the aim of the slag men to organize for the past year or two but their action was also hastened by the coming Highway Industries Assn. meeting. The motion to form the association was made by C. E. Ireland (Birmingham Slag Co., Birmingham, Ala.). H. J. Love was elected secretary, a position he held until a few years ago.

Summing up these activities in the February issue was the report of the Highway Industries Assn. meeting in Chicago on January 21. It was at this meeting that Mr. Sutton made the address previously mentioned. One of the vice-presidents elected at this convention was the late Lion Gardiner.

Also in the February issue was a report on the convention of the Ohio Macadam Assn. (formerly Interstate Stone Manufacturers' Assn.) at Columbus on January 15 and 16. The usual subjects were discussed including labor shortage, railroad car shortage, finances, disturbed bond market, etc. The chief subject,

• E. J. Krause, until his recent death president of the Columbia Quarry Co., St. Louis, Mo., was always active in national and local association affairs. He was one of the founders of the National Crushed Stone Assn. and was its third president in 1921.

• V. O. Johnston, now president of the Lincoln Sand & Gravel Co., Lincoln, Ill., was one of the founders of the National Sand and Gravel Assn., and was its third president 1920-21. He showed lantern slide views of his plant at the Chicago sand and gravel convention.

• John Rice, now chairman of the board of directors of the General Crushed Stone Corp., Easton, Pa., was also active in the early affairs of the National Crushed Stone Assn. and was its second president in 1920.

• E. Guy Sutton, now vice-president and secretary of the Neal Gravel Co., Mattoon, Ill., was the first secretary and treasurer of the National Sand and Gravel Assn., serving from 1918 through 1922.

FRANK W. RENWICK
CHICAGO
ASSOCIATION PIONEER AND OPERATOR OF ONE OF THE LARGEST AND FINEST EQUIPPED SAND AND GRAVEL PLANTS IN THE WORLD

• Frank W. Renwick, now president and general manager of the Chicago Gravel Co., Chicago, Ill., was a founder of the National Sand and Gravel Assn. and served as its first president from 1911 through 1916.

however, was "the need of combining state organizations and the formation of associations in states where none exists now, so that road material men may, through a central organization, meet the wishes of official Washington by being in better position to give quickly facts and figures relative to the industry and to cooperate with the government in its road-building as a part of the war program." A photograph used with this article showed a group of officials including Claude C. Clark, assistant secretary.

In the same issue was a description of the 1918 annual meeting of the Indiana Crushed Stone Assn. on January 9 and the Indiana Sand and Gravel Producers' Assn. on January 15, both in Indianapolis. Among the familiar names among the officials of the latter group were M. A. Neville (Western Indiana Gravel Co., Lafayette) and E. Guy Sutton. Mention was also made of the coming meeting of the American Concrete Pipe Assn. in Chicago, the Gypsum Industries Assn., and the American Concrete Institute. It was also announced that the Contractors' and Builders' Show, scheduled to take the place and dates of the annual Cement Show, February 6 to 13 in Chicago, had cancelled its big exhibition because of the freight car shortage.

The editorials in this issue discussed such subjects as the bond market, car shortage and price, the motor truck, and operating costs. There was also an important article entitled *Know Your Costs,* a subject which is now again receiving close attention. A staff-written article discussed *Methods of Stripping Quarries.* Others discussed motor trucks, chain vs. belt elevators, concrete products as a winter opportunity, the need for skilled workers for the 28th Engineers, the quarrymen's regiment, data on lime production, etc.

**March, 1918**—In this issue was reported in detail the first real meeting of the National Sand and Gravel Producers' Assn., which was held in Chicago on February 7 and 8. The big attendance and practical program were cited as features. At this meeting E. Guy Sutton was re-elected secretary-treasurer and the late Walter F. Jahncke was elected vice-president. Other speakers at this meeting were: Duff A. Abrams, known as the father of modern concrete design; the late B. F. Affleck, then president of the Portland Cement Assn.; and J. C. Buckbee, now retired.

There was also a report on the meeting of the National Crushed Stone Assn. held in Chicago on February 7 and 8. They elected as president the late A. J. Blair, as second vice-president John Rice, and among the directors James Savage and the late C. M. Doolittle. Nathan C. Rockwood was appointed temporary secretary.

Editorials in this issue dealt with associations, and the high accident rate and what should be done about it. The subjects of other articles were: a biography of H. J. Love, secretary of the National Slag Assn.; the meeting of the Illinois Sand-Gravel Producers Assn.; the limiting properties of road stone; a new gravel plant; a device for lowering dynamite, etc.

In place of photographs the convention articles were illustrated with excellent pen portraits of men prominent at the meetings. They were the work of the editor, F. G. Pulley. Some of these are reproduced herewith.

## 1947 Construction in U. S. At New Dollar Volume Peak

F. W. Dodge Corporation has revealed that the dollar volume of contracts awarded in the 37 states east of the Rocky Mountains last year was the highest in the nation's peacetime history. It was only 6 percent under the all-time record of 1942, peak year of war construction, and was 4 percent above the dollar total for 1946.

Last year's increase in contract volume did not reflect fully the performance of the construction industry, according to Thomas S. Holden, president of the Dodge corporation. In an interpretative analysis, he points out that last year opened with an extraordinary volume of construction projects contracted for and started in 1946 and which were carried over into 1947 for completion.

"Last year," Mr. Holden said, "was marked by a very considerable speed-up in rates of completion of all types of residential and nonresidential projects following the industry's faltering performance in 1946, when strikes in major industries slowed building material deliveries, and various governmental controls and restrictions interfered with the smooth functioning of the industry."

The 1947 total for building and engineering contracts in all classifications was $7,759,868,000, as compared to $7,489,722,000 in 1946. Within the overall increase of $270,000,000, heavy engineering projects accounted for $259,000,000 and combined residential and nonresidential building accounted for $11,000,000. By a narrow margin, residential contracts at $3,153,773,000 exceeded the dollar volume of any other previous year.

Residential building was marked by a substantial increase in rental housing. Investment commitments for apartment projects amounted to $855,974,000, as compared to $486,495,000 in 1946, an increase of 76 percent. In 1947 contracts for public building and engineering projects represented 30 percent of the dollar total, as compared with 23 percent for 1946.

## ● Correction

We regret that, due to incorrect information, there appeared in our January issue (page 93) a statement that a 600-barrel plant was being built by the Alaska Cement Corporation near Seldovia, "using equipment from the . . . Washington-Idaho Lime Products Co., Orofino, Idaho." We have been informed by the latter firm that the cement plant at Orofino is still intact at the location and has not been purchased or disposed of. However, the facilities are now offered for sale, according to Otto C. Frei, president.

## $1,300,000 Installation Planned for Processing Phosphate at Florida Mine

A $1,300,000 project, involving the design and construction of a system to convey, store, dry and ship phosphate rock has been begun for International Minerals and Chemical Corp., to serve its new Noralyn Mine, at Bartow, Fla.

The installation, to move the product from the flotation or washing plant to final shipment, a distance of nearly 2,800 ft., is being made by The Rust Engineering Co., Pittsburgh, Pa.

Initially the installation will have a dryer capacity of 165 long tons an hour. The design will include facilities to double the capacity. Provisions will be made for an open air storage pile capable of handling 101,000 long tons of concentrated phosphate from the mine.

Wet concentrated phosphate from the flotation or washing plant will be taken on a neoprene covered belt 1120 ft. to the storage pile.

From storage the wet phosphate will be reclaimed on a belt conveyor running in a 500 ft. long reinforced concrete tunnel under the storage area. A bulldozer will be used to reclaim that portion of the product which does not feed by gravity through tunnel gates onto the reclaiming belt.

Reclaimed phosphate will be carried 844 ft. from the storage area to dryer feeder bins, designed for a capacity of 1400 long tons.

The wet phosphate will be dried from an expected 12 to 14 percent moisture down to approximately 2 percent, in an 80 ft. direct oil fired, parallel flow dryer. The dryer building will be of steel frame and corrugated siding and will include space for boilers and electrical distribution equipment.

The conveyor belt carrying the finished product from the dryer to shipping bins will be heat resistant and, including shuttle belts for distribution at the bins, will carry the product 412 ft. Directly under the bins, designed for 10,000 tons total capacity, will be three shipping tracks with facilities for loading by gravity nine phosphate cars simultaneously. Car loaders will be provided for box car loading.

Design and soil tests have been completed, and construction has begun. It is anticipated the entire system will be in use in late fall of 1948.

## Dicalite, Soda Operations Important Nevada Industries

Two important mining projects are progressing at locations south of Mina, Nev. The Dicalite Division of the Great Lakes Carbon Co. is mining and refining diatomaceous earth at Basalt, while from Rhodes Marsh it is expected that a daily production of 20 tons of soda will be possible.

Refined diatomaceous earth is shipped to eastern plants by the Dicalite Division to be used in the manufacture of filters and paper products.

# 31st stone convention and show breaks all attendance records

## Steve Weston becomes youngest president in history of Crushed Stone Association

another ON THE SPOT report

The National Crushed Stone Association's 31st Annual Convention, held at the Netherland Plaza Hotel, Cincinnati, January 26-28, 1948, set new records in attendance, as did the meeting of its Agricultural Limestone Division on January 29 and 30, and the meetings of the sand and gravel and ready-mixed concrete groups the preceding week. The reasons were the same — the largest machinery exhibits in history, a variety of excellent speakers, interesting open forums on operating methods, and a burning desire on the part of producers to get all possible clues on what the future holds in Store. The result was a total attendance of 941, of which 261 were crushed stone member producers, 129 were agricultural limestone member producers (38 of the above were members of both), 206 were guests (largely non-member producers and ladies), and 383 were associate members.

• Steve Weston Jr., Weston & Brooker Co., Columbia, S. C.

### New Officers

W. S. Weston, Jr. (Weston & Brooker Co., Columbia, S. C.), is the new president and chairman of the board of the N.C.S.A., by many years the youngest man ever elected to that office. He succeeds G. A. Austin (Consolidated Quarries Corp., Decatur, Ga.). The following were reelected: James Savage (Buffalo Crushed Stone Corp., Buffalo, N. Y.), treasurer; J. R. Boyd, administrative director; A. T. Goldbeck, engineering director; J. E. Gray, field engineer. New directors are: G. A. Austin; Wilson P. Foss III (New York Trap Rock Corp., New York); R. T. Lassiter (Southern Aggregates Corp., Raleigh, N. C.); George Lott, Jr. (Palmetto Quarries Co., Columbia, S. C.). Mrs. Anna R. Wilson (Granite Rock Co., Watsonville, Calif.), was elected a director and regional vice president to succeed her late husband, A. J. Wilson. Mr. Foss replaced Stirling Tomkins who was elected an honorary member.

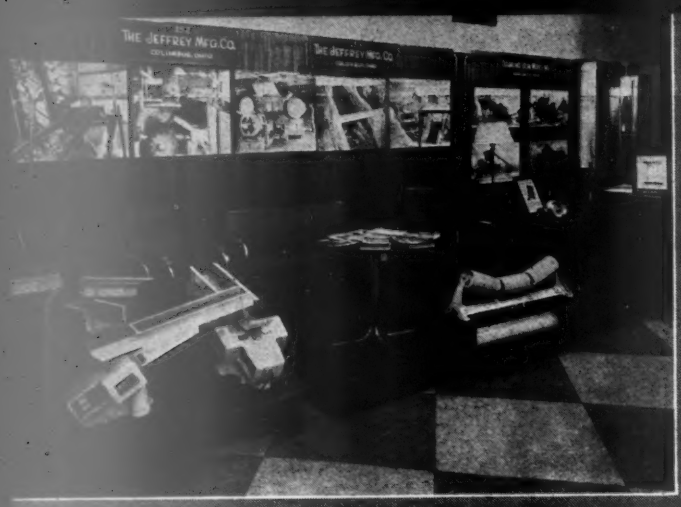
### Manufacturers' Division

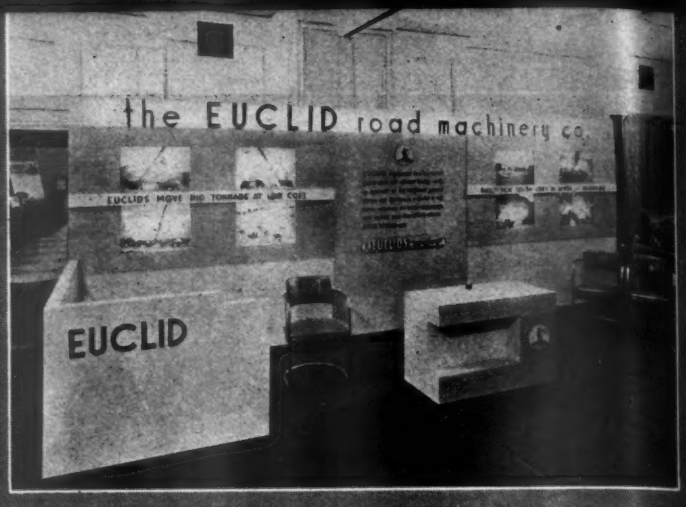
At the annual meeting of the Manufacturers' Division, Cottrell Farrell (Easton Car & Construction Co., Easton, Pa.), was elected chairman, succeeding J. B. Terbell (American Manganese Steel Div., American Brake Shoe & Foundry Co.). Mr. Farrell automatically became one of the three division representatives on the N.C.S.A. board of directors, replacing L. C. Mosley. J. R. Boyd was reelected secretary. Irwin F. Deister (Deister Machine Co., Fort Wayne, Ind.) was elected a vice chairman to replace Mr. Farrell. New directors are: D. M. Blackburn (Hendrick Mfg. Co., Carbondale, Pa.); L. A. Eiben (Northern Blower Co., Cleveland, O.); C. O. Friend (Nordberg Mfg. Co., Milwaukee, Wis.); W. A. Rundquist (Pioneer Engineering Works, Inc., Minneapolis, Minn.);

• Three past presidents of N.C.S.A.—W. F. Wise (Southwest Stone Co., Dallas), Otho Graves (General Crushed Stone Co., Easton, Pa.) and Henry Rodes (Franklin Limestone Co., Nashville).

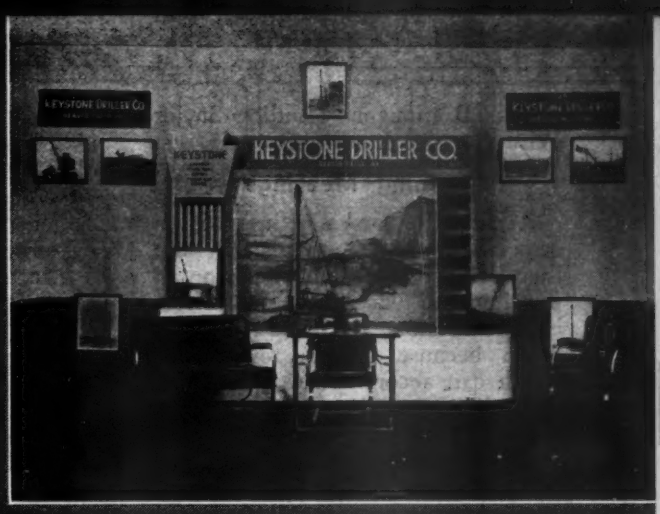
• Festivities paused but a brief moment for the photographer to snap this picture of the joint annual banquet of the 31st N.C.S.A. convention and the 3rd Agricultural Limestone meeting. After polishing off a seven-course meal, the guests heard the Hon. Josh Lee, former U. S. Senator from Oklahoma, comment on "Aviation and a Brave New World".

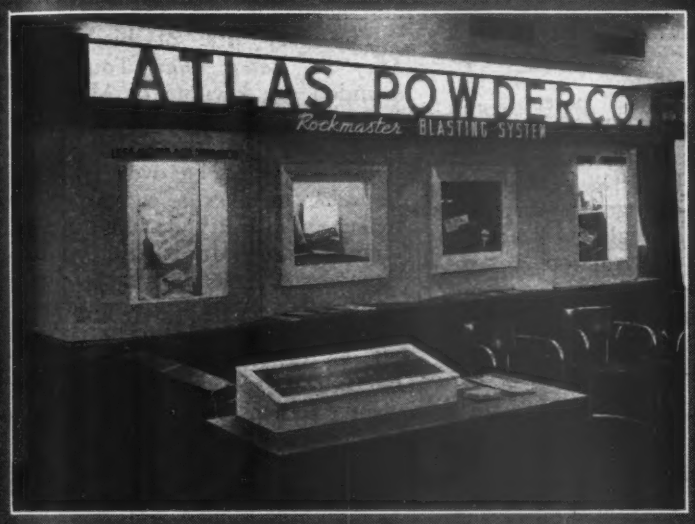
• Well-fed members of the Manufacturers' Division heard R. V. Fletcher, special counsel for the Association of American Railroads, describe the current car shortage as less critical than the one following World War I.



# Equipment exhibits highlight annual stone meeting



Shown here are just a few of the exhibits displayed by the Manufacturers' Division at the 31st annual convention of the National Crushed Stone Association. Over 70 percent of the Division's membership participated in this first display of machinery and equipment since before the war. Although there was no evidence to indicate imminence of the Buck Rogers Era, working models and photographs showed a definite trend toward sleek, streamlined contours in many items of equipment. Unable in most cases to show actual models of their machines because of size and weight limitations, the manufacturers did an outstandingly good job of displaying their wares in the space available, suggesting, rather than delineating, size, scope and function. The twelve photographs reproduced here cover only about one-fourth of the displays in the exposition. All the booths were quite as photogenic as these, and the editors of Pit and Quarry regret that lack of space prohibits more complete coverage.

Frank B. Ungar (Ludlow-Saylor Wire Co., St. Louis, Mo.).

### Coming Meetings

At the directors' meetings of the association and its agstone division there was considerable discussion of the time and place for coming meetings. Selections are being narrowed down because of the few places which can accommodate a machinery exhibit and they must be made further in advance because of growing competition for the best places and times. It was decided that the 1949 convention of the National Crushed Stone Assn., with no exhibits, will be held at the Hotel New Yorker, New York, February 7 to 9. No definite decision was made for 1950 but, as was the case with the sand and gravel group, only Chicago and Cincinnati, of the centrally-located cities, seem to have adequate facilities for a machinery exhibit. It is interesting to note that the agstone division board later decided to hold its 1949 meeting at the Edgewater Beach Hotel in Chicago, February 21 to 23. The 1948 mid-summer crushed stone directors meeting will be at The Homestead, Hot Springs, Va., July 8.

### President's Address

The meeting was opened, as is the custom, with a brief address by President, G. A. Austin (Consolidated Quarries Corp., Decatur, Ga.). Mr. Austin said that business is good, the future looks good, and the convention looks like the best and biggest in the history of the association. He said that producers have gathered in record numbers to try to find some clue as to future developments, to hear the excellent array of speakers, and to look over the equipment exhibits.

### Business Conditions

Mr. Austin then read a summary of reports by the association's regional vice presidents on business conditions in 1947 and the prospects for 1948. The answers to ten questions, based on these reports, were as follows:

1—Volume of business was up 10 to 25 percent in 1947.

2—Prices were up 3 to 22 percent, with an average of 10 percent.

3—Ratio of volume to capacity varied from 70 to 80 percent, with a few reporting over 100 percent.

4—Distribution by uses was:
Highways, 30 to 65 percent—average 50 percent.
Railways, 6 to 20 percent—average 15 percent.
Building, 5 to 50 percent—average 20 percent.
Chem. and met., 22 to 23 percent.
Riprap, 1 to 8 percent.
Concrete prod. 0 to 8 percent.

5—Prospects for 1948 indicate no material change in distribution but a slight increase in highway construction is expected.

6—Volume in 1948 is expected to increase by all except one of the eight regional vice presidents.

7—Increases in productive capacity were reported by many.

8—The freight rate increase is expected to divert much business to operators of roadside or portable plants and from railroads to truck haulers.

9—The controlling economic factor was agreed to be the high cost of labor and materials which is holding down construction volume.

10—Reports on general conditions indicate that all costs are up and that prices cannot be raised enough to compensate.

### Sales Pointers

According to the official program the Convention Arrangements Committee unanimously decided that a speaker should be scheduled whose talk would especially appeal to salesmen. After considering many candidates the Committee enthusiastically selected Frank W. Lovejoy, president, Sales Executive Club, New York, who was for 25 years connected with a large oil company in a sales capacity. All who were at this meeting will long remember Mr. Lovejoy and the manner in which he put his points across interspersed with humorous comments and pertinent anecdotes.

The very title of his talk, *It May Be Later Than You Think,* sounded the keynote of Mr. Lovejoy's plea that we must again become sales minded as the honeymoon will soon be over. Usually, he said, it takes a catastrophe to make an industry do the things it ought to do. More selling must be done — real merchandising which finds out what the customer thinks he wants and gives it to him. Above all, he warned, we mut keep our balance in spite of the disturbing events which occur from time to time. We must understand that "freight rates will never be equitable, profits will never be high enough, or wages, and don't ever let anyone tell you they will." Competition, said Mr. Lovejoy, is a part of business and always will be.

In a semi-facetious manner Mr. Lovejoy commented on the average sales portfolio which is gotten up at great expense and toil. It usually has, he said, a photo of the president of the company on the first page, a picture of the plant on the second page, and how the product is made in the rest of the book; and then the salesman never uses it. Actually what sells, said Mr. Lovejoy, a reputation—what people think of you.

According to Mr. Lovejoy, if you

• Below, left: E. J. Goes (Koehring Co., Milwaukee) and Irvin F. Deister (Deister Machine Co., Ft. Wayne, Ind.) were in a jovial mood when we snapped their picture.

• Center: Miss B. G. Gay (National Crushed Stone Assn., Washington, D. C.) and W. F. Wise (Southwest Stone Co., Dallas).

• Right: Richard L. Campbell (Harry T. Campbell Sons Corp., Towson, Md.) and W. Vincent Pietsch (Bacon-Pietsch Co., Inc., New York).

are not set up to sell then it is later than you think—selling should be started now even if demands are ahead of production. Lack of sales experience should not deter a producer from making sales efforts as no sales campaign was ever perfect and it is the effort put into it that counts the most. When you lose a sale, he cautioned, forget it and go after the next one—you can't get them all. If you're right 51 percent of the time you're okay. He also said that change is not necessary, if you have a good product advertise it and keep selling. Merchandise with common sense to as many people as you can reach and use the language of the man on the street.

Mr. Lovejoy then gave six of his fifteen rules of selling:

1. Don't talk too much—you talk yourself out of sales.
2. Never assume an argumentative manner—you only build up objections.
3. Inquire first and attack afterwards.
4. Be sure the buyer knows you understand his objections.
5. Stick to one key issue—most minds are only capable of one at a time.
6. Why? — Most buyers don't know why they don't like your product. Ask them why.

## Report of Administrative Director

In his report J. R. Boyd, administrative director, said that the financial condition of the association and its Agricultural Limestone Div. are both excellent in spite of the great expense of purchasing, fixing up, and moving into the new headquarters building. This moving job, he said, also interfered considerably with the usual work of his department but the improved facilities will make it possible for all departments to do more and better work from now on. He also commented on the fact that the active membership roll of the association had increased from 113 to 118 during the year and the associate membership from 69 to 74.

Mr. Boyd then briefly described the new building and some slides were shown which made it apparent that the association now has facilities which few others can duplicate. (Editor's Note: A complete description of the new building, prepared by a member of the executive committee, Stirling Tomkins, was distributed at this meeting and it will be reprinted in full, with a complete set of illustrations, in the April issue of PIT AND QUARRY, following its appearance in the March issue of the association's *Crushed Stone Journal.*)

## Report of Engineering Director

A. T. Goldbeck, engineering director, in his annual report said that during the first 5 months of 1947 things were normal in his department but that in May preparations were begun for moving into the new building. The actual moving was done in July and some time was also required to reinstall the equipment, with the result that for about 3 months little actual testing could be done. With these new facilities, he said, the association is now equipped to make any necessary tests or investigations much more efficiently than was possible in the old cramped and inadequate quarters.

According to Mr. Goldbeck, in addition to this relocation, his department's work during the year included:

(a) Laboratory research.
(b) Routine tests for member companies.
(c) Field tests for member companies on specific problems.
(d) Technical society work.
(e) Writing of technical papers and discussions.
(f) Work in connection with the new building.
(g) Correspondence and new report writing.
(h) Planning of research.
(i) Membership.

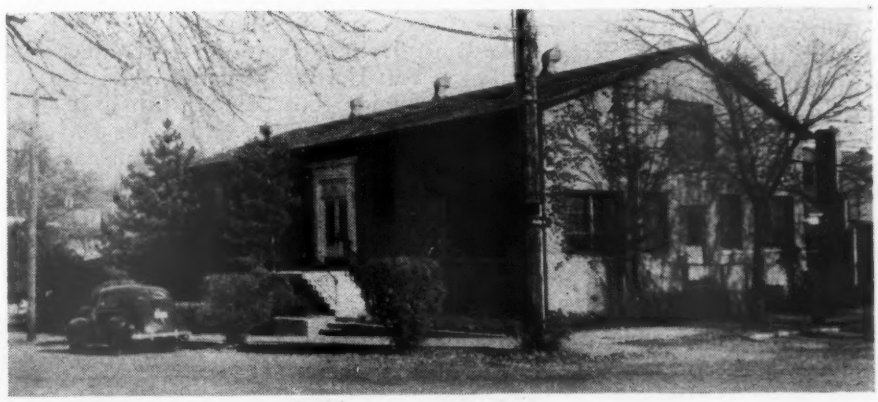
Each of these lines of activity was then reviewed in detail with a brief summary of the work planned for 1948.

## Report of Field Engineer

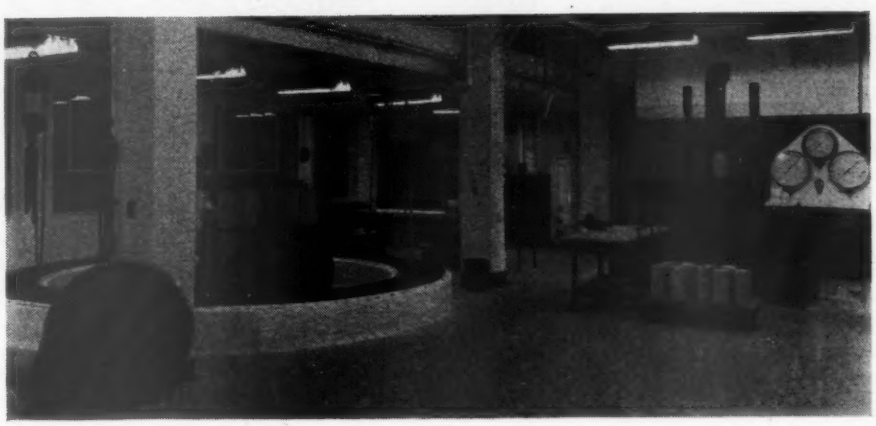
In giving his report on his activities as field engineer, J. E. Gray, said that this work has resolved itself now into a fairly definite pattern. It involves, he said, spending much of his time in the field in order to do the most effective job. His field trips he classified as follows:

1. Traveling on special assignments involving particular technical problems.
2. Attending meetings of state or local crushed stone associations, state highway conferences, national engineering societies and special groups.
3. Calling on member companies to offer technical assistance and to learn the problems confronting the industry.

Mr. Gray's report of the special assignments on which he worked with members in various parts of the country made it apparent that this work is indeed important in helping them to meet the type of



• The National Crushed Stone Association's new building in Washington, D. C.



• A general view of the southeast corner of the laboratory, showing the circular testing track (foreground) and the 300,000-lb. testing machine (right).

problem which a producer is seldom equipped to solve. His attendance at meetings of various kinds was also described in detail, as well as his liaison work between the members, the executive staff, and the board of directors of the association. Mr. Gray made it evident that his job is a full-time one as he must cover 28 states and Canada. In 1947 this work kept him out in the field 153 out of a possible 254 working days, which he said is about a maximum for efficient work.

### General Discussions

Contrary to general opinion about teachers, professor G. H. Scholer, of Kansas State, is a practical man. His practical knowledge of aggregates has obviously been gained through years of wide experience plus plenty of theoretical study and research. And after 25 years in the field, Professor Scholer openly admits that we're a long way from understanding why a particular type of aggregate may result in more durable concrete.

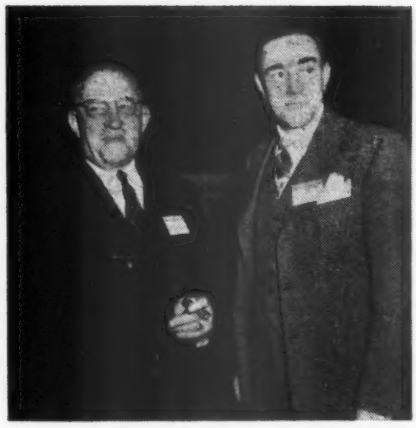
Generally, said Professor Scholer, aggregates affect the durability of concrete because of their physical properties (strength, shape, size), chemical analysis, process of recovery and crushing, and their water content. Encouraging to crushed stone producers, he said, is that the trend in road construction is to use a stone sand rather than a natural sand.

*America's Secret Power* was the subject discussed by Robert W. Watt, manager, publications and research department, New Jersey Manufacturers' Assn. A former commander of a counter-espionage unit, Mr. Watt feels that a fifth column is endangering our free enterprise system. A lot of people, he said, don't know the true meaning of freedom.

To awaken public opinion — America's secret power—to the support of free enterprise, Mr. Watt thinks it is high time we interest the populace through talks, movies, and so on, in the advantages to the individual inherent in our economic system.

### Taft-Hartley Act

The Labor - Arrangement Relations Act of 1947, said John C. Gall, attorney-at-law, is a subject about which much controversy has centered—both before and after passage of the Act. Although no definitive appraisal of the workability of the Taft-Hartley Act can yet be made, certain limitations of the law are evident. Two of the important problems not dealt with by the Act involve, first, mass picketing, and second, labor monopoly.



• J. R. Thoenen (U. S. Bureau of Mines, Tuscaloosa, Ala.) and Joseph E. Gray (National Crushed Stone Assn., Washington, D. C.).

Answering labor's agonized cry of "slave labor law" Mr. Gall pointed out that the act does not deprive the individual worker of a single right he enjoyed before. The law does, however, distinguish between labor and labor unions and attempts to restrict unions or their agents from exercising certain privileges at the expense of their members and the public.

Despite countless attacks upon the Taft-Hartley Act, in Mr. Gall's opinion this law is primarily responsible, in the six months since its enactment, for the phenomenal decrease in work stoppages.

### Wage-Hour Law

In his address delivered before an attentive audience, Reuben S. Haslam, associate counsel for the N.A.M., repeatedly stressed the significance of an extended Wage-Hour law. Despite the clear written intent of the Wage-Hour law, court interpretations have extended the Act until almost all classifications of employment are covered by provisions of this law.

Because of unrealistic interpretations of what constitutes work or worktime under the Wage-Hour law, Congress passed the Portal-to-Portal Act of 1947. From the standpoint of the crushed stone industry, Mr. Haslam said, "the most significant provision of the Act (Portal-to-Portal) is that it protects employers from accrued liabilities if their operations have conformed in 'good faith' with administrative interpretations or enforcement policies."

However, the Wage-Hour Administrator has shown a strong inclination to attach a somewhat limited significance to the Portal Act. Therefore, he may be expected to continue to extend the scope and application of the Wage-Hour law.

### Safety Awards

Before presenting the association safety awards, F. J. Buffington, safety engineer for New York Trap Rock Corp., gave a brief talk on the accident prevention program of the crushed stone industry. He then presented the awards. The first place award went to the LeRoy Quarry, The General Crushed Stone Co., LeRoy, N. Y., with 110,850 man-hours without a lost-time accident. J. D. Hawthorne is superintendent of this plant.

Later the same evening, Mr. Buffington presided over an informal gathering for those members interested in accident prevention. At this meeting, representatives of some eleven companies proposed to pool their detailed accident statistics. From the compilation of these figures, Mr. Buffington hopes to lay the groundwork for a more satisfactory safety program.

• Ralph C. Johnson (Simplicity Engineering Co., Durand, Mich.), J. B. Tarbell (American Manganese Steel, New York, and Cott Farrell (Easton Car & Construction Co., Easton, Pa.) represent the Manufacturers' Division on the association's new board of directors. Mr. Farrell is chairman of the group.

### The Crisis in Railroad Transportation

At the annual luncheon sponsored by the Manufacturers' Division of the N.C.S.A., R. V. Fletcher, special counsel for the Association of American Railroads, Washington, D.C., spoke on *The Crisis in Railroad Transportation.*

He said that the railroads are now facing a real crisis but that in the last 40 years they have faced many others. He described the formation of the Interstate Commerce Commission before World War I and the troubles resulting from government operation during that war. The car shortage which followed, he said, was the worst in history, at least four times as bad as the one we are now going through. He also described the vast improvement program carried out by the railroads in the 20's.

Preparedness on the part of the railroads and cooperation with and from the Administration made it possible to avoid government control during World War II, said Mr. Fletcher. During recent years, he said, there have been fewer cars but this lack has been largely compensated for by larger and faster locomotives and better service. In 1947 more cars were loaded than ever before in history and the turnmore cars were loaded than ever known. The outlook, said Mr. Fletcher, is optimistic, as cars are now being built faster than they are being retired. There are now 120,000 cars on order, of which 50,000 are open top.

According to Mr. Fletcher the railroads now have an investment of 28 billion dollars, which depreciation has reduced to about 22 billions. Their capital is only about 16½ billions but, he said, their debt has been reduced about 18 percent in recent years. He also pointed out that freight rates have increased only 38 percent from 1939 to 1946 while labor went up 70 percent and materials 146 percent. He also pointed out that the railroads and pipelines are our only unsubsidized forms of transportation.

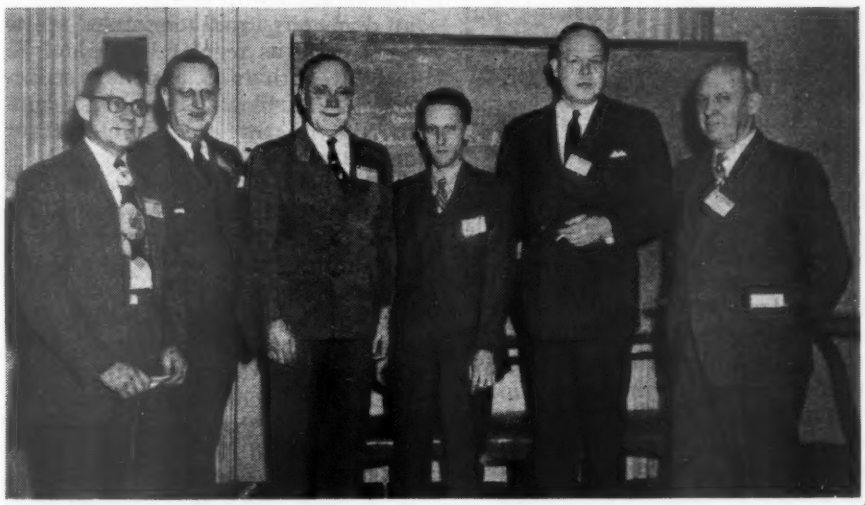
## Operating Sessions

In keeping with the association's long-established policy of devoting as much time as possible to practical operating problems, two full sessions were scheduled this year for operating men and equipment manufacturers. T. C. Cooke (Lynn Sand & Stone Co., Swampscott, Mass.) and Nelson Severinghaus (Consolidated Quarries Corp., Decatur, Ga.) led the discussions and presided.

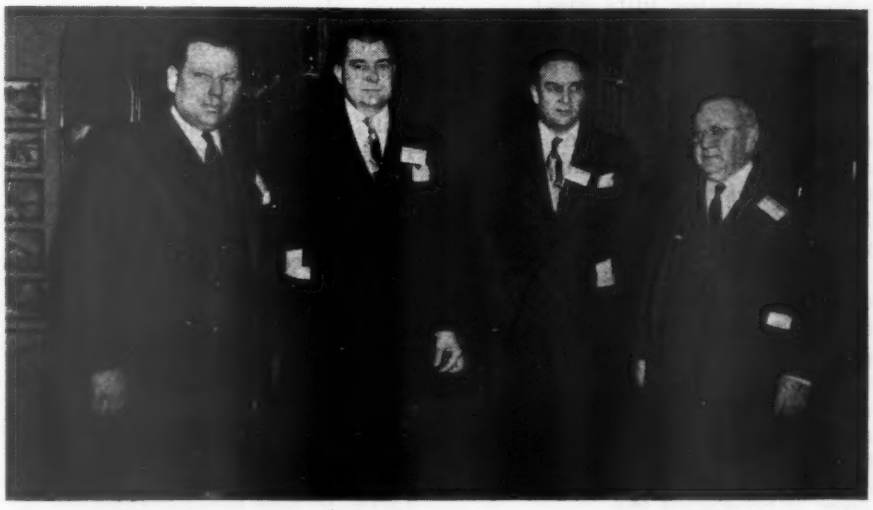
**Churn Drills** J. R. Thoenen (Chief, Tuscaloosa Division, Mining Branch, U. S. Bureau of Mines) summarized the results of

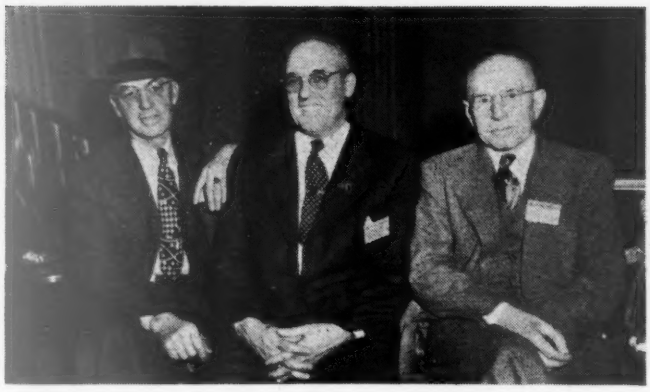
• Amos R. Taggert, F. E. Swanson, and M. G. Wilson (all of the Syracuse Supply Co., Syracuse, N. Y.) and Harry R. Hayes (New York State Crushed Stone Assn., Albany).

• John Wolfe (Atlanta Truck & Tractor Co.) and Perry Bechtel (also of Atlanta) again stopped the show with their excellent banjo and guitar playing. On two evenings they entertained guests in the Pit and Quarry suite. Shown with them here are representatives of the Campbell Limestone Company, which sponsors their appearances at the crushed stone conventions.



• E. R. Roush, R. Moore, George Schaefer, J. T. England, O. E. Benson and M. Bovee. With the exception of Mr. Roush and Mr. England, who represent the Acme Limestone Co., Ft. Spring, W. Va., all these gentlemen are associated with the General Crushed Stone Co., Easton, Pa.





• J. L. Huff (Blue Ridge Stone Corp., Blue Ridge, Va.); H. L. Jackson (Trojan Powder Co., Dublin, Va.); and T. P. Smith (Pembroke Limestone Corp., Pembroke, Va.).

• Charles J. O'Laughlin (Consumers Company, Chicago); Mrs. Edward P. Larsen; and Mr. Larsen (Robins Engineers, Chicago).

an extensive investigation of churn drill performance[1] carried out by the Bureau of Mines at a number of stone quarries throughout the country. Essentially a crusher, the churn drill depends for its performance on the foot-pounds of energy it can impart to the cutting edge of its bit. The following conclusions are mentioned in the report as tentative:

1. Drill performance decreases with elapsed time in general, but enough exceptions were encountered to indicate the need for additional study.

2. Available data were insufficient to compare type of cable used with drill performance. The tests indicate, however, that performance characteristics for steel and manila cable differ radically.

3. The specific gravity of the drill sludge should be about 70 percent of the specific gravity of the rock being drilled for optimum results.

4. Lengthening the stroke seems to improve initial performance, but with elapsed time the drilling rate equalizes regardless of stroke length.

5. Performance improves with increase in tool weight up to an indicated optimum weight per inch of bit diameter. Beyond the optimum, added weight has little effect.

6. A change in the number of strokes per minute or drill speed has only minor effect on performance.

7. Volume drilled and efficiency increase with increase in bit diameter up to an optimum beyond which added diameter has no effect. However, linear hole drilled varies inversely with bit diameter.

8. The angularity or sharpness of the cutting edge of the drill bit has only a minor effect on drill performance.

9. Exclusive of drill mechanism and power unit, the mechanical efficiency of a churn drill seldom (if ever) exceeds 20 percent, and will probably average nearer 10 percent.

[1]See *Churn-Drill Performance* by J. R. Thoenen and E. J. Lintner, Bureau of Mines Report of Investigations 4058.

**Blast-Hole Drilling** M. L. McCormack (Ingersoll-Rand Co.) gave a brief description of his company's new Quarrymaster[2] air drill for blast hole work. Designed to speed up drilling, keep cuttings and chips out of the way, and reduce friction, the Quarrymaster drills with bits up to 6 inches in diameters, and to depths up to 35 ft. with its regular boom and 75 or 80 ft. with an extension. It strikes 200 to 220 blows per minute compared with an average of 60 for churn drills.

The new drill features controlled rotation and adjustability of the force of the blow struck by adjusting the throttle. It is built with an integrally-mounted 500-c.f.m. compressor which delivers air at 95 to 125 pounds pressure at the bit. Cuttings are ejected with the exhaust air.

C. W. Buchler of Bucyrus-Erie Co. reported that his company has gone to a drill carrying 500 pounds to effect an increase of 60 percent in drilling. The drill referred to is designed to carry a load of 6,000 pounds, and can drill holes up to 12 inches in diameter.

A representative of the Sullivan Division of Joy Manufacturing Co. made brief mention of a unit employing the Hughes rotary bit in a modification of the type of rotary drill used in oil field work. The rotation is effected entirely with pressure, and the machine drills 2½ to 3 times faster than a corresponding churn drill.

The effectiveness of carbide-insert and alloy-type bits was discussed in connection with drill performance. One operator told of doubling footage with the alloy type, and of even greater gains (up to 150 ft.) with carbide inserts. Excessive breakage of drill rod was mentioned as one drawback. An Ingersoll-Rand representative stated that improved drill rods and stud-type connections will be developed to facilitate the use of tungsten-carbide inserts. He disclosed that his company is now ready to place a 1¾-in. bit of this type in the field, and that a 2-in. will appear shortly.

[2]For a more complete description with illustrations, see pages 105-6 of this issue.

**Delayed Action** The second operating session of the convention concentrated almost exclusively on the problem of delayed-action blasting. On the discussion panel were Dr. L. Don Leet (seismologist, Harvard University, Cambridge, Mass.), Jules E. Jenkins (Vibration Measurement Engineers, Chicago), L. F. Miller (New York Trap Rock Corp., Newburgh, N. Y.) and Harold Williams (attorney-at-law, Boston).

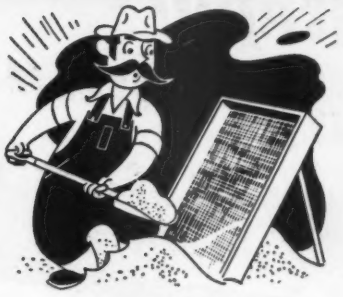
Lou Miller opened the discussion with a general statement regarding the great benefits available to any quarry operator by the use of delayed-action blasting. The technique, Mr. Miller said, increases production from 15 to 25 percent, and reduces costs correspondingly.

Mr. Jenkins stated that wide experience with the delay technique, using either delay caps or some form of blasting switch, has definitely established that the method materially reduces vibration. The right technique for a particular quarry must still be established to some extent by trial and error, but when an optimum is arrived at it is necessary to stay within it.

According to Mr. Jenkins the present concept of proper burden and spacing may have to be revised, and operators must be willing to gamble a little in order to find answers to these and similar problems in connection with delayed-action blasting. Since the problem of vibration is more psychological than seismological, Mr. Jenkins believes that the entire concept of blasting must be

(*Continued on page* 90)

# Screenings



## by William M. Avery

OUR astute readers will surely have noted the face lifting job which is in evidence in most of the departments and in several of the featured articles in this issue. While it is in no sense a radical change from the old one, the new standing head for Screenings has, we think, an appeal which its predecessor lacked, and we hope our vast audience will be similarly impressed. Other examples of our "new look" will be found in the reports of the National Crushed Stone and Agricultural Limestone Division Conventions on pages 78 and 88. Like the little woman when she has just acquired a new hat, we feel a general perking up and resurgence of energy which we hope will be transmitted without impairment to our readers.

### Burning Question

A RECENT issue of *Limeographs* devotes considerable space to the problem of burns allegedly suffered by football players as a result of contacting the lime used to mark

yardage and sidelines. It was noted that an especially vehement protest had been made by the Rice Owls, who claimed that almost every man on the team sustained lime burns during their game with Texas Christian at Fort Worth last season. *Limeographs* points out that the burns must have been caused by either the improper use of quicklime in place of hydrated lime, or by friction between the players and the field. Also noted in passing was the possibility that the Owls were burned up because they had lost the game.

Any way you take it, it's rather disturbing after all these years to learn that players can sustain injuries in a safe, gentle, leisurely game like football, and we are grieved that the onus should have been directed, however mistakenly, at one of our important industries.

### Popularity

RAY SMITH, our circulation manager, has just finished tabulating returns on a survey in which readers were asked, among other things, to indicate their favorite PIT AND QUARRY writers. The home team garnered an impressive number of votes, but we'll be hanged if Messrs. Rockwood and Nordberg of *Rock Products* didn't turn up with one vote each. So far we haven't succeeded in doping out any clear, impartial method of recording their votes in the final tabulation, but the problem will remain academic until somebody decides what to do with the poll, now that we have it. Maybe we could swap votes in somewhat the same fashion that opposing armies swap prisoners.

In voting on their preference for the various departments in PIT AND QUARRY, fourteen readers gave the nod to Screenings, while six mentioned it as the department they liked least. We felt a little glum about the six dissenters until it occurred to us that in any case it swelled our readership to a full twenty. Perhaps one of these days we'll have to decide whether to specialize in mild entertainment or go whole hog into the business of being deliberately irritating.

### Delayed Action

WE'VE just received the following complete report on a delayed-action shot engineered by an employee of the Virginia Limestone Corp. When: January 25, 1948, 7:25 p. m. Engineer: David O. Duncan. Unloading superintendent: Dr. Dalton. Parent body: Margaret B. Duncan, Delay interval: 6½. Blasting charge: none. Result: Stella Wilson Duncan. Weight: 3½ pounds. Appearance of parent body: much improved with no backbreak. Appearance of resultant: very satisfactory, with no undesirable breakage.

A notation at the bottom of the reports comments that the delay in-

terval was an unplanned deviation from the normal interval of 9 used in the last two shots. Since smaller products are one of the important objectives in delayed-action shooting, the reduced interval in this instance was completely successful.

### Sheep and Goats

THE altogether annoyin' and pointless problem we propounded last month can be solved by moving the critters in pens 4 and 5 into 7 and 8, and then successively moving 6 and 7, 2 and 3, and finally 7 and 8, each time utilizing the empty pens.

We've had a few mild protests concerning our practice of stating problems in one issue and solving them in the next. Admittedly a month is a longish time to wait for official answers to the profoundly important problems posed in this department, and we certainly don't want our readers to take up hashish, morphine or marijuana to quiet their nerves between issues. Accordingly, in the future we'll run problem and solution in the same issue.

# Report of agricultural limestone division's 3rd annual meeting

another ON THE SPOT report

BY Thursday afternoon, January 29, registrations for the 3rd annual meeting of the Agricultural Limestone Division of the N. C. S. A. had climbed to new record heights. And when all late comers had signed up at the registration desk on the fourth floor of Cincinnati's plush Netherland Plaza Hotel the count totaled 259—129 members, 72 members of the Manufacturers' Division, 24 ladies, and 3 other guests. Under the generalship of Division Chairman S. P. Moore and Managing Director Henry A. Huschke, new highs were recorded in both attendance and in the quality and interest of the talks presented during the two-day meeting. Although a wide range of problems was discussed, the dominant theme of the two-day meeting concerned soil conservation programs.

### Election of Officers

The Agricultural Limestone Division elected as its chairman H. C. Krause (Columbia Quarry Co., St. Louis, Mo.). New members of the board of directors are: Otho M. Graves (General Crushed Stone Co., Easton, Pa.); Cale P. Haun (Franklin Limestone Co., Nashville, Tenn.); H. M. Hubbard (Willingham-Little Stone Co., Atlanta, Ga.); B. G. Lindenfeld (Terminal Materials Co., St. Joseph, Mich.); Roger E. Meshberger (Meshberger Stone Co., Columbus, Ind.); S. P. Moore (Concrete Materials & Construction Co., Cedar Rapids, Ia.); A. Overgaard (A. Overgaard Rock Products, Elroy, Wis.); John Rice (General Crushed Stone Co., Easton, Pa.); W. R. Sanborn (Lehigh Stone Co., Kankakee, Ill.); Norbert F. Schwarz, (Pontiac Stone Co., Pontiac, Ill.); W. F. Sharpe, (Dillon, Sharpe & Co., Columbus Junction, Ia.); Wm. J. Stoffel (Dolese & Shepard Co., Chicago, Ill.); Grove White (M. J. Grove Lime Co., Stephens City, Va.). Russell Rarey (Marble Cliff Quarries Co., Columbus, O.) is the new representative of the N.C.S.A. on the board.

### Prices Fair to Producers and Consumers

The basic goals of agriculture, said Charles F. Brannan, Assistant Secretary of Agriculture, at the association's annual general luncheon are to give people the food and fibre they want at prices fair to producers and consumers, and to sustain agricultural productivity through preservation of the soil. Evidence strongly indicates that these goals can be reached only with the aid of a realistic federal long-range farm program predicated upon a sustained policy of abundance.

Said Charles Brannan, and his opinions, to some measure, undoubtedly reflect the thoughts of the higher oligarchy of the U.S.D.A., an effective farm program must embrace three general fields of effort. They are: (1) research, (2) maintaining consumption and prices, and (3) soil conservation. Most limestone producers have heartily endorsed the department's research and soil conservation programs. Their plan, however, for maintaining consumption and prices is not only less well known but more controversial.

"No agricultural program," mused Mr. Brannan, "can adequately substitute for high levels of employment and wages." But levels of employment and wages fluctuate widely usually paralleling the ups and downs in industrial activity. Despite drops in consumer income the basic needs (food, clothing, and shelter) of our nation are steadily increasing. Is it not therefore evident, he asked, that a sound farm program includes a floor supporting commodity prices high enough to stimulate abundant production? Only in this way, Mr. Brannan believes, can we provide agricultural production sufficient to serve our minimum consumption needs.

Such a "floor under consumption" would include some kind of health insurance — perhaps, free school lunches. It probably would include the direct purchase and distribution of food under a federal allotment program.

To insure a workable relation between food production and food consumption we must continue price supports and acreage (or production) controls. Mr. Brannan would recommend a new and improved parity formula with lower support levels for greater flexibility of distribution.

The U. S. D. A. should have the power, asserted the assistant secretary, to allot acreage, and specify marketing quotas and agreements for all major commodities. However, he promised, these provisions of the program would be invoked only in extended recessionary periods.

Why should the agstone industry support, in its entirety, the long-range farm program as outlined by Mr. Brannan? Because, he said, the future of the limestone industry is tied, like the tail to the kite, to the prosperity of American agriculture. "If we are to produce what our people want, and what a perma-

## Excellent schedule of speakers discuss long range soil conservation problems

• Horace C. Krause (Columbia Quarry Co., St. Louis, Mo.), the new chairman of the Agricultural Limestone Division. Mr. Krause succeeds S. P. Moore.

nent agriculture demands—it will mean more grasslands and hence a great increase in the use of limestone. If, however, this industry is to participate fully in the reward of an organized and sustained abundance, "it will require new thinking and a willingness to follow through —to make changes."

### Your Sales Philosophy

"Thou shalt not steal," quoted Judd C. Benson, general manager of the Union Central Life Insurance Co. Yet, he exhorted, the American farmers are persistently robbing their soil of calcium. To prevent utter dissolution of our most precious basic wealth (the soil), a big selling job lies ahead for every agstone producer—the job of convincing the farmer of the urgent need for liming the soil.

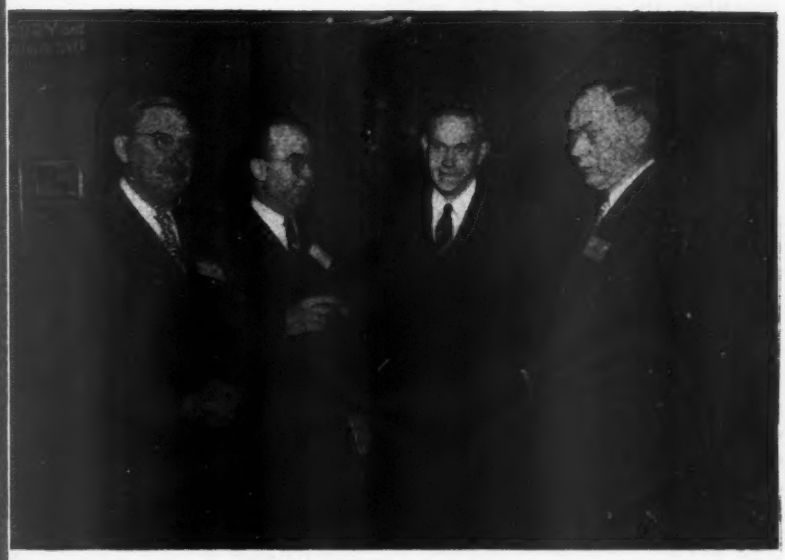
Good selling, postulated Mr. Benson, is a skill acquired by hard work and experience. Selling skill is a commodity which insurance men regard highly and reward handsomely. And if the limestone industry is interested in a wider promotion of limestone products, he said, it will have to increase the emphasis upon good salesmanship.

Good results in selling inherently demands that salesmen, (1) adjust their personality to that of their clients, (2) use vision in selling—don't sell dollars, (3) use appeal that is dramatic, and (4) have a sense of humor.

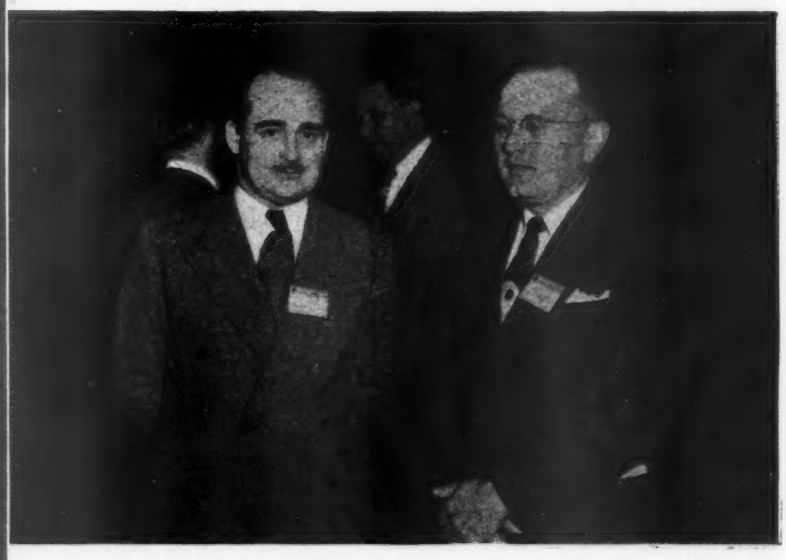
### Agstone Symposiums

*There is More to Dirt Than Meets the Eye* was the title of Tom Kelley's after-luncheon talk. And "Machine Gun Kelley's" (so-called because of his rapid-fire speaking)

• Escorted by two gallant conventioneers was Mrs. D. H. Lory (St. Louis, Mo.). The escorts were M. E. McLean (East St. Louis Stone Co., East St. Louis, Ill.) and C. J. O'Neil (DuPont Co., Chicago).



• Four producers snapped near the Pit and Quarry booth: Paul N. Nauman (Dubuque Stone Products Co.); Philip V. Cory (Blue Rock Quarry, Westbrook, Me.); C. B. Martin and G. C. Holton (American Cyanamid Co., New York).



• The tall corn state was well represented. Here are K. K. Kinsey (Concrete Materials and Construction Company, Cedar Rapids, Ia.) and W. D. Dillon (Dillon, Sharpe and Company, Columbus Junction, Ia.).

illustrated chalk talk practically mesmerized his listeners.

Drawing almost as rapidly as he spoke, Tom Kelly reemphasized the country's desperate need for soil conservation. In industrial America, we're prone to forget that industry (as we know it) is only 115 years old, while farming is ageless. The number of persons who provide us with food are decreasing. Last year, he said, less than 10 million provided an estimated 142 million with food, clothing, and shelter. And people are still leaving our farms.

The future of America, said Tom Kelly, is predicated upon a more intelligent use of what soil we have left. Erosion, floods, and farming have ruined 50,000,000 of our tillable acres. To provide a balanced diet for our population we need 3 acres of land for every man, woman, and child. Today, in these United States, we have sunk to the danger point—3.1 acres of land per capita.

Dr. C. E. Brehm, acting president of the University of Tennesee, has occupied, for many years, a position of prominence in the field of agricultural education. His subject for this meeting was entitled, *What is Ahead for the Farmer.*Dr. Brehm believes that our farmers face a bad depression which will be more severe than the recession succeeding the last war. Contrary to the opinions of the assistant secretary of agriculture, he thinks that government should stay out of farming.

*The Place of Limestone in the Kentucky Soil Improvement Program* was the title of the subject discussed by Wm. C. Johnstone. Mr. Johnstone is a field agent in agronomy, University of Kentucky.

The agstone industry, said Mr. Johnstone, should consider primarily the service they can render to a community and not the profits which they can make from producing and selling agricultural limestone.

Robert H. Engle, agronomist with the National Fertilizer Association, showed one of the best colored movies we have yet seen at any association meeting.

• Carl Dintruff (Hercules Powder Co., Rochester, N. Y.); J. V. Owens (Eastern Rock Products, Utica, N. Y.); Ray Keane (Hercules Powder Co., Wilmington, Del.).

• J. M. Pierson (DuPont Company, Pittsburgh, Pa.) and A. W. Lewis (Pittsburgh Limestone Corp., Pittsburgh, Pa.) talk it over.

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**Crushed Stone Convention**

(*From page* 86.)

changed to take account of this important factor. Much remains to be discovered about the whole subject of delayed-action blasting, he said, and it is a mistake to suppose that it is in any sense a cure-all for all blasting problems.

One producer reported that after hearing the delayed-action discussion at Chicago in January, 1947, he started using a timing switch in the hope of reducing vibration complaints. Not only were complaints entirely eliminated, but fragmentation was so improved that it became possible to work the shovel for a week or two without moving. Secondary blasting was reduced very materially, and the company was spared ruinous restrictions with respect to the number of holes that could be fired.

Mr. Miller, who has carried on extensive investigations of delayed blasting using a timing switch which he developed himself, reported on a number of recent findings. He said that good breakage can be obtained with delayed action whether the stone was soft or hard, but that perhaps the harder stones may require longer delays.

In discussing whether to shoot the "light" hole first or last, Mr. Miller said that poor results have been obtained when blasts have started out with a 500-lb. hole and built up gradually to 1,500 lbs. His company now reverses the sequence. It has also been found more effective to sweep the face continuously from end to end rather than from the middle to the ends, or from both ends toward the middle. Mr. Miller feels that delayed-action blasting poses few saftey problems not already present in most quarries regardless of the blasting technique used. After a delayed-action shot is hooked up, he said, it is a good rule to allow no one to go into the area until after the shot is completed.

One of the questions raised during the general discussion was whether or not below-grade shooting increases the vertical component of vibration. Mr. Cooke stated that in his quarry a high vertical component resulted with shots 2 or 3 feet below the floor. Considerable reduction was noted when the shot was held to about 10 feet above the floor. Mr. Cooke also reported that delayed-action had made it possible to reduce drop ball operations from 9 hours per day to only 2 hours.

In discussing legal aspects of the blasting problem, Mr. Williams stated that any method that reduces vibration must ultimately simplify legal defense. He pointed out that courts are primarily concerned in vibration cases with the amount of vibration at the point of complaint. In this regard delayed action promises to be of great assistance.

In the discussion which followed Dr. Leet made some comments on the vibration effects of short-delay shots. He said that the problem varies with every quarry. He then reviewed the early experiments made by the U. S. Bureau of Mines which laid the groundwork for present knowledge. The experiments started with long intervals which were gradually cut down, resulting in reduced vibration. It now seems apparent that the reduction occurs right at the shot and that the velocity varies for different materials. According to Dr. Leet when the first hole has shattered the gases go into the decoupled area and break the stone further but with little effect on the solid stone back of the shot. It has been found that intervals of 20 to 30 milliseconds give the best results in most quarries.

# Click Farm Gravel Plant Includes Modernized Dredge and Equipment

ONE of the most modernly-equipped gravel plants in the Middle West has been developed by William Click Sr. and his two sons, Frank and William Jr., on their farm a few miles west of Port Huron, Mich. This clean, practical installation is a first-rate example of the application of common-sense to plant layout and use of equipment, a plant in which the Clicks take justifiable pride.

The gravel pit on the Click farm was first opened in 1921 and a pumping plant was installed in 1924. The original equipment included a wooden dredge powered by a gasoline engine. In the spring of 1947 the dredge and plant layout were modernized, and the equipment now includes an all-steel barge, a pump with a suction pipe on pontoons, a cutter and cutter-ladder, a gravel screening plant, and two draglines. William Click Sr. engineered the dredge and plant layout, and his two sons built the new barge.

Three railroad oil tanks 6 feet in diameter and 32 feet long are used as floats for the barge. Eleven steel I-beams 24 feet long support the deck house. Welded to the tanks and bolted to the I-beams are 44 angle cross-braces. Twelve angle-iron braces are welded to the ends of the I-beams and to the outer sides of the tanks. The oak plank deck is 24 feet by 32 feet.

The cabin, 20 feet by 28 feet and 8 feet high, is fabricated out of welded angle-iron and enclosed with aluminum corrugated roofing. The cabin is bolted to the deck beams. The dredge, including the cabin, can be taken apart. This all-steel dredge is powered by a Model LP-601 Cummins diesel engine, which operates through a Twin Disc Model 218 power take-off.

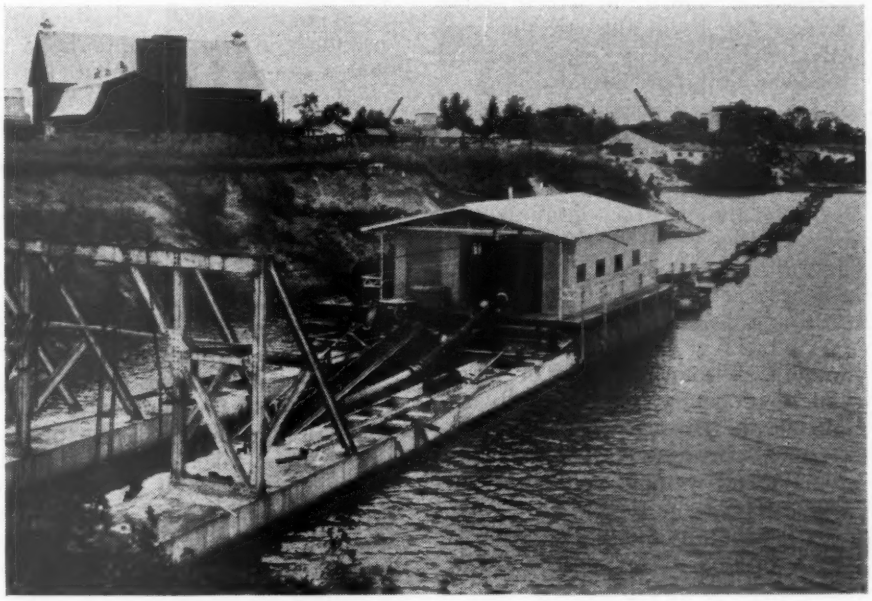
William Click Sr. expressed great satisfaction with his Model LP-601. "Our fuel costs are now about two-thirds less than they were before we installed the Cummins diesel engine," Mr. Click says. "The Model LP-601 also has more power than our previous engine. Our production has increased due to the resulting increase in pumping efficiency.

The Click dredge is equipped with a Hetherington & Berner pump with a 10-inch suction and 8-inch discharge. A 52-foot cutter feeds the gravel to the suction. The cutter ladder is mounted on four pontoons, each 4 by 6 by 25 feet in size. The cutter is powered by a small Allis-Chalmers gasoline engine. The cutter ladder was made by the W. H. K. Bennett Co. of Chicago. This part of the plant equipment has been used since 1938.

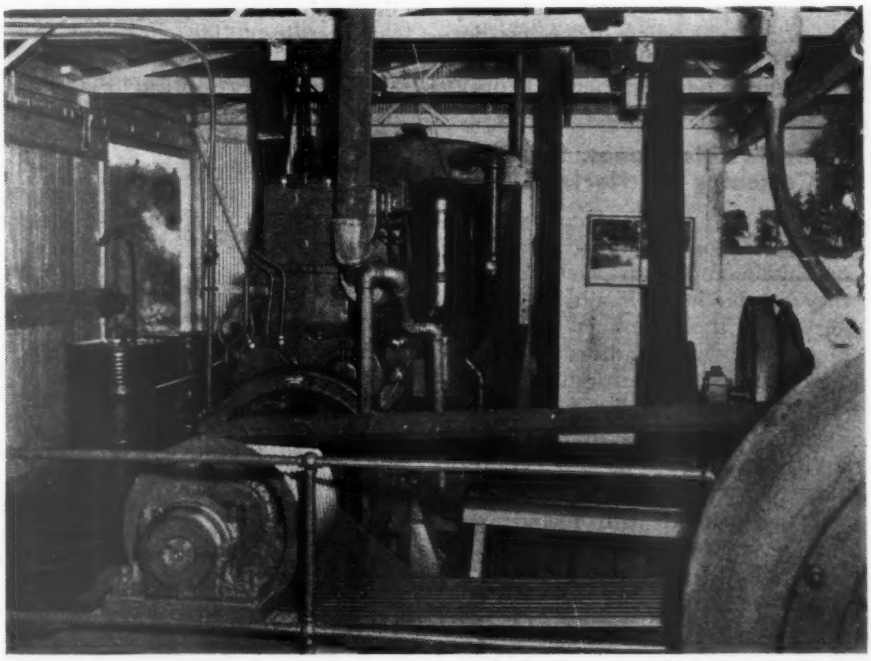
The gravel screening plant includes three Blaw-Knox bins, a New Holland vibating screen, a New Holland roll crusher, a New Holland elevator, and a Wheeling jaw crusher.

The throttle for the Cummins diesel engine which powers the dredge, the starter and throttle for the gasoline engine used on the cutter, the clutch through which the main engine drives the pump, and the cutter clutch, have been brought to one location on the dredge.

Currently, the pump is operating through a 70-ft. suction pipe and discharging through 550 feet of discharge pipe laid on pontoons which stretch across the pond to the gravel screening plant. This gravel plant produces 60 cubic yards of material an hour, including masonry sand, ¼-in. torpedo sand, ½-in. block sand, and bridge pebbles for culverts and bridges.



• This modern dredge and gravel plant, owned and operated by William Click and Sons, is located on their farm near Goodells, Mich. Controls are centralized on the dredge for one-man operation.



• The power installation on the dredge, showing the power take-off and engine. Fuel cost has been decreased and output increased by modernized equipment.

# General Status of Cement Industry And Market In Mexico

By SANTIAGO SOTO M.

another P and Q exclusive

THE cement market in Mexico has fallen off visibly since about September of last year, principally for the following reasons:

The Fall and end-of-the-year months are always bad for business and all industries in Mexico, as they are practically all over the world.

The former administration left the present government with completely cleaned out vaults, for which reason it has not been able to put into effect the large dam, irrigation, and roadway programs intended.

Aside from the above, the present administration has had to take care of the expense involved in fighting the hoof and mouth disease, which has cost the present administration pretty close to $100,000,000 Pesos, during the present year.

These setbacks have, of course, been felt in the Nacional projects, involving constructions to the amount of many billions of pesos, which, of course, has naturally reflected on private construction investments, tending to create a poor demand for cement and construction material.

It is generally accepted that after the beginning of 1948, these conditions will not be the same, which will, of course, create governmental and private demand.

The above conditions have placed in the Mexican cement market, not an oversupply of cement, but a supply of cement where price has fluctuated from $90.00 to $105.00 Pesos, per metric ton of cement. (Former official price was $120.00 Pesos).

### Cementos Mexicanos, S. A., and Cementos Del Norte, S. A.

These two affiliated concerns, located in Monterrey, are producing nominally and with slack demand; they are having difficulty in disposing of all their products, especially in view of the initiation of production of the new product, called Ferro-Cement, produced with iron slags, from the Monterrey smelting district. The total production of these two plants is rated at 600 tons per day, which, with former production, (300 tons per day of Cementos Mexicanos, S. A.), will give them pretty close to 1000 tons per day.

### Cementos Hidalgo, S. C. L.

This factory, located in Hidalgo, N. L., and run by a cooperative society and the workmen, is producing about 200 tons per day.

Through the Nacional Financiera, negotiations have been completed for additional money to equip this plant with new machinery that will enable them to add 300 tons per day.

### Cementos Chihuahua, S. A.

Located in Chihuahua, Chih., this firm has added equipment up to a point where it is beginning to produce in the neighborhood of 300 tons per day. Under normal conditions this will not take care of the consumption of this district.

### Cemento Portland Nacional, S.A.

This concern, located at Hermosillo, Sonora, inaugurated its new plant with a rated capacity of 300 metric tons per day, on September 15. This is one of the few wet-process plants in Mexico, with Mr. E. B. Smith as plant superintendent.

This plant supplies northwestern Mexico, and for the next 4 or 5 years practically all of the production will be taken up in producing the cement required by the Alvaro Obregon dam, which is above Ciudad Obregon, Son., and which will irrigate pretty close to a quarter of a million hectares.

### Cementos Del Pacifico, S. A.

This plant, at Mazatlon, Sinaloa, practically constructed during the last war, started producing in 1947 at the rate of 100 to 120 metric tons per day.

Equipment consisting of additional kiln, mills, and cooler has been ordered, and is now in the process of manufacture in the United States, to increase the capacity of this plant by an additional 150 metric tons per day.

### Cementos Del Bajio, S. A.

Del Bajio, Leon, Gto., is producing in the neighborhood of 300 metric tons per day of one of the best quality cements produced in Mexico.

Because of inherent difficulties in the setting up of this plant, due to war conditions prevailing at that time, these people are now carrying on a reform program in their plant, which will ultimately give them a production of 400 tons per day.

### Cementos Guadalajara, S. A.

This plant, located in Guadalajara, is also carrying on an extensive expansion program, which should be in full effect sometime within the course of the coming year, but if conditions in the country improve as a whole, as is expected, this plant will not be able to take care of the local demand for cement.

### Cementos Mixcoac, S. A.

This plant is producing at normal capacity in the Federal District, but because of the prestige of the Cementos Mixcoac plant, cannot supply demand, and has been making up this deficiency by supplying customers with cement purchased from other concerns.

### Cemento La Tolteca

La Tolteca is going full blast with the installation of its new plant at Tolteca, which will have an ultimate production of 750 metric tons per day. This new plant should be in production this year.

### Cementos La Cruz Azul, S. C. L.

This company is operating a unit at Jasso with a production of from 240 to 350 metric tons per day. The same company is also operating a unit in Lagunas, State of Oaxaca, with an approximate daily production of about 150 tons.

The Lagunas unit of Cruz Azul has acquired the necessary machinery to increase its production by about 400 tons a day, and this increased production should go into effect at the very latest by the middle of 1948, with the ultimate aim in mind of taking care of the large irrigation and water power projects that the Mexican Government has in view for the Papaloapan district in Veracruz.

Cruz Azul initiated this year a study for the construction of a new plant in Jasso, Hgo., with a capacity of 1200 metric tons per day.

However, due to the temporary bad market conditions for cement in Mexico, this project has been abandoned for the time being; it will be renewed later this year.

### La Polar, S. A.

This concern, at present operating a very small white cement plant in the Federal District, Tlalnepantla, is just finishing the first of three 80 ton units of white cement, installed in Vito, Hgo., which is north of Apaxco.

This new white cement plant, the

(*Continued on page* 94)

# Callanan Slag and Materials Company Capitalizes on Ideal Location Setup

another ON THE SPOT report

FROM the Troy Road bridge over the Hudson River, between Albany and Troy, N. Y., the tall blast furnace of the Republic Steel Company's pig iron plant is one of the most prominent objects to be seen. Not so visible, but serving an equally important function, is the adjacent slag-crushing plant of the Callanan Slag and Materials Co., Inc., at the river's edge. This crushing plant is operated for the purpose of reducing the waste slag from the furnace to a salable aggregate for use in road building, railroad ballasting and for rock wool manufacture.

The crushing plant is actually in the rear of the steel company's installation. Railroad tracks parallel the river and are thus easily accessible as a transportation facility. A large part of the production, however, is shipped by truck.

Hot, molten slag from the blast furnace is decanted into one of two cooling pits, which are dug on alternate weeks. Water admitted at intervals into these pits fractures the slag into fragments for ease in digging.

Callanan Slag and Material's equipment is used to load the slag chunks, still very hot, into International K-11 dump trucks, which make the 500-yd. haul to a storage pile next to the crushing plant. Since the slag is often too hot to touch, a certain amount of care must be taken to protect the tires of these trucks from the radiation of excess heat from the dump body. Three trucks are used on this short haul, for as much as 750 tons per day of slag can be handled when the plant is running at capacity.

• A general view of the Callanan Slag & Materials Company's plant at Troy, N. Y., strategically located beside railroad tracks.

From the storage pile, the slag chunks are bulldozed into a concrete bin directly over the primary crusher. To handle the large tonnages moved in this manner, the 'dozer, a Bucyrus-Erie hydraulic model, is mounted on an International TD-14 tractor.

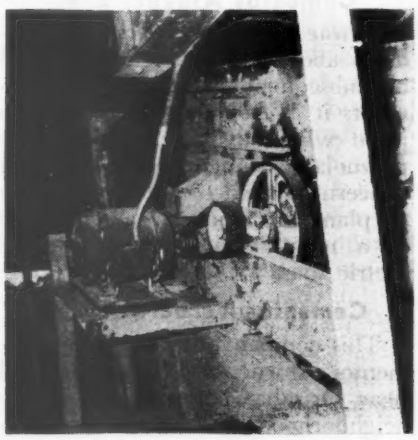
An Iowa Manufacturing Co. 4- by 8-ft. pan feeder mounted at the base of this bin feeds the raw material into a Telsmith No. 13 gyratory crusher, where it undergoes the primary reducing operation. Crusher discharge, generally minus 3-in., falls from the gyratory directly onto a 30-in. Kennedy-Van Saun belt conveyor, carrying a special heat-resistant belt on troughing idlers. The Dings magnetic head pulley of this conveyor is vitally necessary in this operation, where a great deal of tramp iron of various sorts gets into the raw slag. So much scrap iron is recovered, in fact, that it is practically a by-product of the crushing plant.

The belt conveyor discharges onto

• Below, left: The primary crusher below the storage bins at the start of the flow sheet in this plant. The crusher discharge falls on the belt and conveyor shown.

• Center: The three-deck screen at the top of this plant.

• Right: The lower portion of the secondary crusher.



• One of the three trucks dumping its load of still hot slag on the stockpile at the crushing plant. Slag is recovered from the quenching pits near the blast furnace (background).

a 4- by 8-ft. Seco screen carrying $1\frac{1}{16}$-in. wire cloth. Material not passing this screen is chuted into a Telsmith No. 40 crusher which acts as the secondary crushing unit.

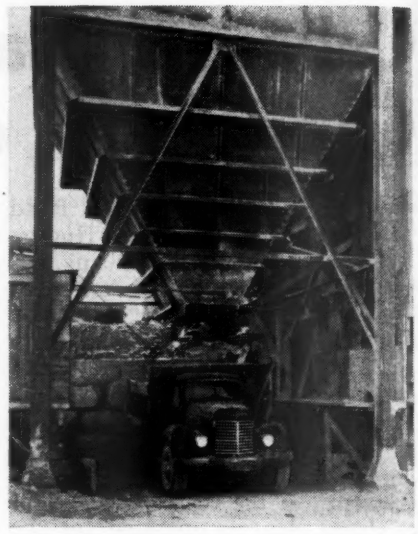
Material passing the screen, plus secondary crusher discharge, is fed into the boot of a single chain elevator with 18- by 18-in. buckets, which carries the crushed slag to a Seco 3-deck screen at the top of the plant. This screen carries $1\frac{1}{16}$-in. cloth on the top deck, $\frac{9}{16}$-in. on the center deck, and $\frac{5}{16}$-in. cloth on the lower deck. The various separations made on this screen are chuted to separate bins, beneath which is a Symons cone crusher for further reduction of sizes that are slow moving. The discharge from this crusher is chuted to the 18- by 18-in. bucket elevator, except for the material passing $\frac{5}{16}$-in., which drops to the deck of a double-deck Robins Vibrex screen. This screen is fitted with $\frac{1}{8}$-in. top deck and $\frac{1}{16}$-in. bottom deck, which bins the material separately. Throughs on this screen are binned and classed as screenings.

Four of the five steel bins were supplied by the Butler Bin Co., the other is home-made. With the present arrangement, the bins can be tapped in two ways, permitting both truck and railroad car loading.

When trucks are to be loaded, they are backed under the bin structure, and material from the bottom of the correct compartment drops into the dump body. Material for rail loading is taken from the side of the bin directly to chutes overhanging the railroad tracks. Two cars may be loaded simultaneously. Some of the trucks loaded belong to the company.

The products of the plant, five sizes, as mentioned above, are used locally for road building, ballast, concrete construction work, and for other special purposes — some of these last being experimental uses which show great promise.

It is interesting to note that the flux stone for the blast furnaces is furnished from one of the quarries of the Callanan Road Improvement Co. However, the slag operation is under a separate corporate identity, known as the Callanan Slag and Materials Co., Inc. J. R. Callanan is president of this company, and W. H. Harper, is executive vice-president. Peter Ginder Jr. is superintendent of this plant.



• A truck beneath the bin which discharges the five sizes of finished product.

## Mexican Cement Industry

(*From page* 92)

first unit, was scheduled to go into operation early in 1948.

### Cemento Mexicano Portland

This concern, located in Apaxco, Mexico, is operating at an approximate rate of 300 tons per day. This company has very well advanced plans for increasing the capacity of its present plant by the acquisition of new equipment, which will enable it to produce an additional 300 tons per day. It is likely that this addition to this plant will materialize some time this year.

### Cementos Moctezuma, S. A.

Since approximately 8 to 9 months ago, this plant at Cuernavaca has gone into production, producing from 120 to pretty close to 200 tons per day. This plant is also one of the victims of the last war, and will undoubtedly have to secure new machinery to sustain its present capacity and to increase its production within the course of the next two years.

### Cementos Atoyac, S. A.

Atoyac, at Puebla actually produces about 250 tons of cement, and by subsequent additions of equipment, it is hoped to get up to a point where it will produce more pozzuolanic cement than any other concern in Mexico. Recent additions to plant are said to have resulted in a monthly production of 8000 metric tons.

### Cementos Veracruz, S. A.

This company, affiliated with Cementos Atoyac, S. A., and located near Orizaba, is producing in the neighborhood of 200 tons of pozzuolanic cement per day. This concern, a subsidiary to Cementos Atoyac, is hampered by local conditions, where daily rains make operation difficult.

The addition of another kiln is contemplated.

### Cementos Anahuac, S. A.

This plant, built during the war, is located in Barrientos, Tlalnepantla, just outside of the Federal District; this is also a plant that was also constructed primarily with second-hand equipment.

At present they are producing in the neighborhood of 150 tons of cement a day, but are ordering a new kiln, mill, and auxiliary equipment, which will have a corresponding beneficial effect on production costs.

According to the statistics published by the Mexican Association of Cement Producers, the total effective cement production in Mexico in 1946 was 1,284,000 tons; additional production supposed to have gone into effect within the course of year was 795,700 tons.

As a matter of fact, the actual production of cement at the end of 1947 had not yet reached one million and a quarter metric tons of cement, and even with the scheduled additions, as indicated above, it will not reach the figure indicated as ultimate production for this country—2,080,500 tons.

In spite of the slack in the cement market during the last months of 1947, and which has more or less produced a panic amongst the cement producers in Mexico, the writer dares to forecast that as soon as the large Government projects get under way, with the corresponding private construction that these projects will naturally involve, Mexico will again become a cement importing country.

# Efficient Use of Compressed Air from Portable Compressors in Quarries*

## PART II

*Air Receivers*—The air receiver is an essential part of every air compressor installation. It absorbs pulsations in the discharge line from the compressor, insuring a steady flow of air to the service line. It also acts as a reservoir for the storage of compressed air, and furnishes reserve capacity to take care of sudden and unusual momentary demands in excess of the capacity of the compressor. Another of its functions is to precipitate moisture present in the air as it comes from the compressor, or moisture which may be carried over from the aftercooler.

There is danger in the use of air receivers of unsound or questionable construction. In many states the A. S. M. E. standards of construction of unfired pressure vessels are incorporated in the law. The Compressed Air and Gas Institute has adopted as a part of its standards the requirements of the A.S.M.E. Code for air receivers; such standards include recommended sizes and capacities shown in the accompanying table for discharge pressures up to 125 pounds p.s.i.

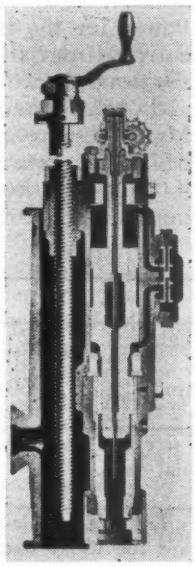


Fig. 4.

The use of special tanks of lighter construction for pressures below 125 pounds should be avoided, as the slight saving, if any, does not compensate for the risk that the lighter tank may be used inadvertently for higher pressures, at some future time.

Receiver pop safety valves cannot be set at a higher pressure than the working pressure for which the receiver is stamped, and since these safety valves must be set slightly above the operating pressure, it follows that the operating pressure on the system must always be 8 to 10 pounds lower than the pressure stamped on the receiver. This calls for notification to purchasers that they cannot buy a 125-pound receiver for use when they carry 125 pounds working pressure.

A.S.M.E. STANDARD AIR RECEIVERS

| Diameter, Inches | Length, Feet | * Actual Compressor Capacity for which Receiver is Suited, Cu. ft. Free Air per Minute | Volume, Cu. ft. | Safety Valves Diameter, Inches | Size Drain Valves | Types of Opening for Cleaning |
|---|---|---|---|---|---|---|
| 14 | 4 | 60 | 4½ | ¾ | Size of drain to to meet requirements of A.S.M.E. Code for Unfired Pressure Vessels | Openings for inspection and cleaning are required and must meet specifications of A.S.M.E. Code for Unfired Pressure Vessels |
| 18 | 6 | 95 | 11 | 1 | | |
| 24 | 6 | 185 | 19 | 1½ | | |
| 30 | 7 | 305 | 34 | 2 | | |
| 36 | 8 | 450 | 57 | 2½ | | |
| 42 | 10 | 640 | 96 | 3 | | |
| 48 | 12 | 1,275 | 151 | 3 | | |
| 54 | 14 | 1,900 | 223 | 3 | | |
| 60 | 14 | 3,000 | 275 | 3 | | |
| 66 | 18 | 4,500 | 428 | 3 | | |

*For automatic start-and-stop service, extra large receivers are recommended to avoid starting too frequently.

All Receivers up to 42″x10′ inclusive have screw openings—48″x12′ and larger have flanged inlet and discharge openings with companion flanges.

Receivers are furnished complete with safety valves, pressure gauge, hand holes or manhole, drain valve and nipple, and base for vertical receivers.

Aftercoolers should be considered an essential part of nearly every compressed air installation. Compressed air or gas always contains moisture to some degree, depending on the condition of the air taken into the compressor and on the system of compressor. This moisture, because of the heated condition of the air or gas as it leaves the compressor, is carried along as vapor, through the receiver, into the pipe line. Where the pipe lines are long, considerable heat loss takes place and the moisture-carrying capacity of the air or gas is reduced to such an extent that moisture is precipitated.

Water in compressed air often causes considerable annoyance and expense. It causes "water hammer" in pipe lines, reduces the capacity of the lines and, in case of freezing, may burst the pipe.

Expansion and contraction due to alternate heating and cooling of pipe lines, where the air is discharged directly from the compressor into a line without being cooled, produces strains and costly leaks.

In addition to water, some lubricating oil is carried by compressed air from the compressor cylinders. Like the water vapor, this oil vapor condenses when cooled and, unless removed, will collect in the air receiver and in the pipe lines, building up deposits there which under abnormal operating conditions may ignite and explode. Eliminating this oil vapor eliminates this hazard.

To remove water and oil vapor, they must be condensed; and it is, therefore, necessary to cool the compressed air or gas. Aftercoolers used to accomplish this consist essentially of steel shells containing a nest of tubes. Water circulates through the tubes and the air or gas passes around the tubes. By cooling the air or gas to approximately the temperature at which it entered the compressor, most of the vapor is condensed and can be separated out of the air before it enters the service lines.

A moisture separator is an essential part of an efficient aftercooler. An automatic moisture trap is also recommended.

As water is used for cooling, an aftercooler always should be set indoors to avoid freezing. The aftercooler preferably should be set between the compressor and the air receiver, so that any condensed moisture carried with the air after leaving the cooler can be collected in the air receiver and removed.

*Air Filters*—A compressor must be furnished with filtered air or gas to insure continued satisfactory operation. If dust or other foreign matter is continually sucked into a machine, it causes rapid wear of the working parts and forms an obstructive coating on the cylinder, valves, etc. To avoid such a condition an efficient air filter should be attached to the air intake pipe of air compressors, and suitable scrubbers should be used to insure clean gas to the intake of all gas compressors. There are several standard makes of such filters now available, and recommendations to meet specific

*The material in this article was compiled from "Compressed Air Handbook," recently published by the Compressed Air and Gas Institute, 90 West St., New York 6, N. Y.

conditions can be obtained from compressor or filter manufacturers. The filter should be of ample size to prevent restriction of the air flow.

If the noise usually made by the suction of the compressor or the noise occasionally encountered in compressor discharge lines is objectionable, a silencer should be used. Several makes of satisfactory silencers are available and recommendations can be obtained from the compressor or silencer manufacturers. The silencer should not offer a resistance to the air flow exceeding two inches of water.

*Hand-Held Rock Drills* — The hand-held, self-rotating hammer drill (Figs. 4 and 5) is commonly known in the United States as a "sinker" or "jackhammer," etc., depending upon the locality and the manufacturer's usage. In some localities, the name "sinker" is applied to only the heavier machines as used for shaft sinking. In quarry language, the smaller machines are referred to as "block-hole drills."

Common weight classifications for hand-held type machines are the 35-lb. class for the smaller types, used for hitch-cutting, drilling anchor holes, coal mining, etc.; 45-lb. class for secondary and general drilling; and 55-lb. class for drills on road construction and general rock excavation work or for deep holes.

Fig. 5.

Nearly all hand-held drills are designed to be mounted in a cradle or shell for light drifting or stoping if desired. Most of these adjunct mountings take the drill as is, that is, without any major changes.

*Drifter Drills*—Defined in simplest terms, the drifter drill is a rock drill especially adapted to putting in horizontal holes, in mining operations for drifting or cross-cutting and in tunnel driving. It is suitable also for use on tripods or as a wagon drill for work in quarries or on contract jobs involving rock excavation. While primarily designed for flat holes, it is equally effective for down holes or angular drilling, when suitably mounted.

Drifters are usually provided with self-contained lubricators, but line oilers are recommended as a means of insuring proper lubrication.

*Stopers*—These tools (Fig. 6) are most commonly used in mining for overhead stoping, driving steeply-inclined and vertical raises, box-holes, chute preparations, hangar holes, etc.; but they also find some application in industry for drilling bolt holes in concrete or overhead demolition work.

The conventional stoper includes, in its simplest from, a hammer drill arranged to be sustained and fed forward by an air piston.

In recent years, most stopers have been of the "self-rotating" type. Power for the rotation is generally derived from the hammer through the usual device of a spiral rifle bar and ratchet-and-pawl mechanism. Many designs include a device by which the rotation is disconnected if the steel should stick. Another important control device of the mod-

• Classification of rock drills and associated tools.

| | | | | | |
|---|---|---|---|---|---|
| ROCK DRILLS | PLUG DRILLS | These are hand-rotated light drills for plug and feather work. | | | |
| | HAND-HELD SINKERS | HAND-HELD MACHINES PROPER | These are known as hand-held drills, sinkers, or jackhammers. They are self-rotating and are classified by weight. | | Very light .....25 to 40 lbs.<br>Light .....40 to 50 lbs.<br>Medium .....50 to 65 lbs.<br>Heavy .....65 lbs. and up |
| | | CONVERTED DRIFTERS | Known as heavy sinkers and classified by cylinder bore. | 3-inch<br>3½-inch | Other size machines are sold, but these are the usual sizes. |
| | DRILLS ON FIXED-MOUNTINGS | These are drifters. They are classified according to method of feed and cylinder bore. | Hand Feed | Light—3-inch class<br>Med.—3½-in. class<br>Hvy.—4-inch class | Some other sizes of drifters are made but these are the usual sizes. Drifters may at times be mounted on portable drill carriages or jumbos. In such cases, they are distinguished from wagon drills by the fact that the mounting is not an integral part of the unit and is usually not sold with it. Some mechanically fed drifters have air feeds. They are distinguished from stopers by the fact that the drill is not supported by the feed. |
| | | | Mechanical Feed | Light—3-inch class<br>Med.—3½-in. class<br>Hvy.—4-inch class | |
| | DRILLS ON AIR LEGS | These are stopers. They are classified according to method of rotation and weight. | Hand Rotated | Light 60- 75 lbs.<br>Heavy 75-100 lbs. | These are primarily for drilling up-holes, classified partly by weight, partly by bore, into three classes—light, medium and heavy. The distinction is really based on the kind of work they are suited for. |
| | | | Self Rotated | Light up to 75 lbs.<br>Med. 75-100 lbs.<br>Hvy. over 100 lbs. | |
| | WAGON-MOUNTED DRILLS | These are classified according to length of drill travel, steel change, and bore of drill used. | | | Light ..... Max. Drill Travel 8 ft. Nominal Steel Change 6 ft. Max. Bore of Drill 3 in.<br>Medium..... 10 ft. 8 ft. 4 in.<br>Heavy .....12–17 ft. 10–15 ft. 4 in. |
| | BREAKERS | These are usually known as Paving Breakers or Demolition tools, and are classified by weight. | | | Light .....Under 50 lbs.<br>Medium.....50-70 lbs.<br>Heavy .....Over 70 lbs. |
| | SHEETING DRIVERS | Pile drivers are classified by size of paving breaker from which made and size sheeting they will drive. | | | Light.....120-130 lbs.<br>Heavy .....150 lbs. |

## NUMBER OF TOOLS THAT CAN BE OPERATED BY VARIOUS SIZE COMPRESSORS

**The number of tools that can be operated from various size compressors is dependent on a great many factors, such as leakage, worn hose, and tools that are not in the best operating condition. It is also based on a factor of intermittance which assumes that all of the tools are not being operated simultaneously. Therefore, many conditions may develop where a lesser number of tools or a greater number of tools can be operated than shown in the tabulation.**

| COMPRESSOR CAPACITY, cu. ft. per min | 60 | | 85 | | 105 | | 160 | | 210 | | 315 | | 365 | | 420 | | 500 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AIR PRESSURE, lbs. per sq. in | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 | 70 | 90 |
| ROCK DRILLS | | | | | | | | | | | | | | | | | | |
| very light, wet or dry | 1 | 1 | 2 | 1 | 2 | 2 | 4 | 3 | 5 | 3 | 7 | 5 | 8 | 6 | 10 | 7 | 13 | 9 |
| very light, blower style | 1 | | 1 | 1 | 1 | 1 | 3 | 2 | 4 | 3 | 6 | 5 | 7 | 6 | 8 | 6 | 11 | 8 |
| light, wet or dry | 1 | | 1 | 1 | 2 | 1 | 3 | 2 | 4 | 3 | 6 | 4 | 7 | 5 | 8 | 6 | 11 | 8 |
| light, blower style | | | 1 | | 1 | 1 | 2 | 1 | 3 | 2 | 5 | 3 | 6 | 4 | 7 | 5 | 9 | 6 |
| medium, wet or dry | | | 1 | | 1 | 1 | 2 | 1 | 3 | 2 | 5 | 3 | 6 | 4 | 7 | 5 | 9 | 6 |
| medium, blower style | | | 1 | | 1 | 1 | 2 | 1 | 4 | 3 | 6 | 4 | 7 | 5 | 8 | 6 | 11 | 8 |
| heavy, blower | | | | | | | | | 2 | 1 | 3 | 2 | 4 | 3 | 4 | 3 | 5 | 4 |
| WAGON DRILLS | | | | | | | | | | | | | | | | | | |
| light weight | | | | | 1 | | 1 | | 2 | 1 | 3 | 2 | 3 | 2 | 4 | 3 | 5 | 4 |
| medium drifter | | | | | | | | | 1 | | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| heavy drill | | | | | | | | | | | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| GRINDER for detachable rock drill bits | | | 1 | | 1 | 1 | 2 | 1 | 2 | 2 | 4 | 3 | * | * | * | * | * | * |
| DIGGERS | | | | | | | | | | | | | | | | | | |
| light, medium duty clay and trench digger | 2 | 1 | 3 | 2 | 4 | 3 | 7 | 5 | 10 | 7 | 18 | 13 | 20 | 15 | 22 | 16 | * | * |
| medium and heavy duty | 1 | 1 | 2 | 2 | 4 | 2 | 7 | 4 | 11 | 6 | 18 | 11 | 20 | 12 | 22 | 13 | * | * |
| heavy duty | 1 | 1 | 2 | 1 | 2 | 1 | 4 | 2 | 6 | 4 | 10 | 6 | 11 | 7 | 12 | 7 | * | * |
| PORTABLE SINGLE DRUM HOIST | | | | | | | | | | | | | | | | | | |
| cap. up to 2000 lbs. pull slow rope speed on single line | | | | **1 | | **1 | | **2 | | **3 | | **5 | | **6 | | **6 | | **6 |
| high rope speed | | | | | | | | | | **1 | | **1 | | **2 | | **2 | | **2 |
| up to 3500 lbs | | | | | | | | | | | | **1 | | **1 | | **1 | | **1 |
| SUMP PUMP | | | | | | | | | | | | | | | | | | |
| port. centrifugal type low heads | | | 1 | | 1 | 1 | 2 | 2 | 3 | 2 | 5 | 4 | 5 | 4 | 6 | 5 | 8 | 7 |
| two tandem connected pumps higher heads | | | | | | | 1 | 1 | 2 | 1 | 2 | 1 | 3 | 2 | 4 | 2 | * | * |
| port. centrifugal type high heads | | | | | | | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | * | * |

*Compressor capacity more than that needed for usual number of tools.
**Hoist figures based on 80 lbs. pressure.

ern stoper is the air-feed relief through which the pressure of the feed bar may be lessened when the bit is passing through soft, broken or "fitchery" ground. Self-rotating stopers are commonly made in two weight classifications, closely approximating 90 and 120 pounds.

A tappet, or anvil block, is almost invariably included in the chuck construction of the standard stoper. It aids in preventing the gritty cuttings from working back into the mechanism, and permits the use of plain shanks without lugs or collars.

*Wagon Drills* — The modern wagon drill is an adaptation of the earlier skid-mounted drifter, the use of wheels being the very obvious provision for facilitating movement from hole to hole as the drilling project proceeds.

The wagon drill is used in operations involving relatively-deep holes in rock sufficiently non-abrasive to permit the use of longer steel changes. In the first place, a larger and more powerful drill can be utilized without the excessive fatigue which would result to the operator if held by hand. Then there is the advantage that the drill steel is continually guided more accurately than a hand-held machine could be.

While wagon drills are effectively used in all kinds of ground, perhaps

(*Continued on page* 104)

Fig. 6.

Fig. 7.

BUCYRUS-ERIE COMPANY
BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

The reappearance of exhibits after a lapse of six years, occasioned by the war, contributed in no small measure to the record-breaking attendance at the convention. Producers thronged the exhibit halls at the Netherland Plaza Hotel throughout the entire week of the meeting. As in former years the displays included machinery and equipment for the ready-mixed-concrete industry as well as for sand and gravel. Fifty-seven companies took booth space to make the exposition one of the most impressive in the history of the association.

# New Holliday Plant Runs Wet and Dry Operations on River Bed Site

another ON THE SPOT report

O. N. Holliday has been a producer of aggregates in the area east of Los Angeles for the last dozen years or so and recently doubled his production capacity by placing a new 150-t.p.h. plant in service at Colton, Calif.

Mr. Holliday's original venture in the business goes back to the year 1929, however, when he formed the Tulare Rock & Sand Co. and started production with a sand-and-gravel plant at Lindsay, Calif. In 1935, he sold out to Pacific Coast Aggregates, Inc., and moved into southern California, soon thereafter acquiring the small plant of the Mission Rock & Sand Co. in San Gabriel. This plant is still in operation, having a capacity of about 60 t.p.h. but the time is not far distant when it will probably be abandoned and the land filled and subdivided for residential purposes.

In 1937 Mr. Holliday purchased the old Commercial Rock Co. plant at Upland, Calif., which he has since operated as the Holliday Rock Co. In the 10 years under his ownership numerous improvements have been made at Upland until now the plant is capable of producing 125 t.p.h.

The new plant at Colton is owned jointly with Mr. Holliday's brother, D. L. Holliday, who serves as general manager. This plant, operating under the firm name of Holliday Rock Products Co., is an all-steel structure which went into service in 1946 and during the first year's operation produced almost exclusively on a contract to supply the 110,000 tons of material used in constructing the new freeway on U. S. Highway No. 99 between Colton and Ontario, Calif.*

By HARRY F. UTLEY

The deposit at Colton comprises 82 acres of river bottom, and the pit run is excavated by a Northwest Model 5 1¼-cu.-yd. gasoline shovel which loads dump trucks and a 12-cu.-yd. Euclid unit. The haul to the plant is about 200 yards.

Material dumped into the plant hopper is fed to a 13- by 24-in. Wheeling jaw crusher, a sloping grizzly bypassing the minus 1½-in. gravel and sand to the 24-in. by 85-ft. main belt-conveyor as a cushion before the crusher product is fed on it.

The plant conveyor feeds to a 42- by 72-in. double-deck scalping screen at a point alongside the plant and about 20 ft. above ground level. Rejects from the ¾-in. top-deck mesh are chuted to a 9- by 40-in. Austin jaw crusher set at about ¾ in. The crushed product is elevated to the top of the plant for sizing on the dry rock side a typical procedure in southern California practice. The lower deck of the screen has ¼-in. mesh on half the deck, the remainder being blank plate. Some, but not all, of the sand is extracted by this method, the bulk of the material, from ¾-in. down, passing to another bucket elevator which lifts the material to the top of the plant structure for washing and grading on the wet side. Both elevators are identical and operate in parallel.

The above-mentioned minus ¼-in. sand taken out at the scalping screen is carried to an open stockpile by an 18-in. by 300-ft. Quaker stacker belt. This unwashed material is sold almost entirely to concrete-products plants, which prefer sand with some silt present.

Processing of aggregates is accomplished by a 48-in. by 8-ft. Overstrom triple-deck screen fitted with spray nozzles on the wet side; by a 42-in. by 12-ft. Symons double-deck screen on the dry side.

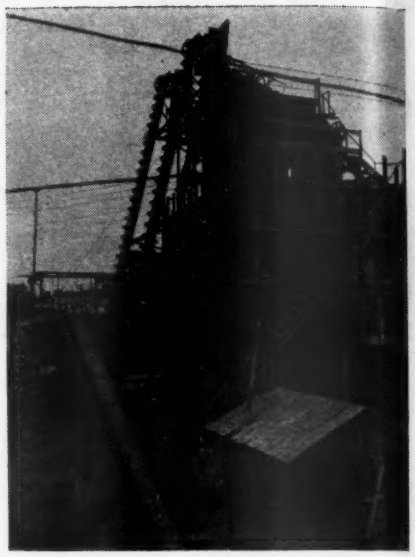
The wet screen has ¾-in. mesh on the upper deck, ⅜-in. on the intermediate, and the lower deck is divided to yield plaster and concrete sands; two 18-ft. drags equipped with 32-in. paddles classify and dewater the sands.

Both decks on the dry screen are divided, the top between 1½-in. and ¾-in. mesh and the lower between ⅜-in. and ¾-in., plus a dust jacket for salvaging the finely-crushed particles.

Finished material drops into the truck-loading bunker below, divided into 11 compartments in two rows, total bin capacity being about 600 tons. Considerable surplus material is stockpiled.

Water is supplied by a well drilled to a depth of 260 ft. and supplied at the rate of 500 g.p.m. by a Pomona 8-in. deep-well turbine pump, with a booster pump in the discharge line to increase the pressure.

All three of the Holliday-owned plants have separate batching plants on the premises. The truck-mixer fleet has recently been improved by the addition of several late-model streamlined Jaeger units.



• A view from the plant hopper, showing the twin elevators leading up to the screens. The conveyor at the left feeds to the scalping screen above the crusher.

• The batching plant on the premises of the Holliday Rock Products Company at Colton, Calif.

*See PIT & QUARRY, January, 1947, page 92.

# 3rd Annual Meeting of Natl. Lime Assn. Operating Division Held at Cincinnati

THE Operating Division of the National Lime Assn. held its annual operating meeting on January 29 and 30 at the Gibson Hotel, Cincinnati, Ohio. The meeting was well attended, chiefly by the top operating men of member companies, and the program was well balanced, covering a wide variety of timely subjects and affording ample opportunity for open discussions. Robert S. Boynton, general manager, and Bolton L. Corson, chairman of the Division, are to be congratulated for their work in formulating this program. Among the many subjects discussed were: dust elimination, lubricants and centralized lubrication, the FluoSolids kiln, the Ellernan calciner, etc. The talks on these subjects were participated in by invited representatives of equipment manufacturers and by the members attending. Part of the afternoon of one day was devoted to an inspection of the machinery exhibit of the National Crushed Stone Assn. and its Agricultural Limestone Division, which were holding their combined annual convention at the same time in the Netherland Plaza Hotel.

### Ellernan Calciner

T. R. Ellerbeck, president of the Ellernan Co., Salt Lake City, Utah, gave a talk on the "Ellernan Calciner" which he designed and is marketing and which he is using in his own plant, the Utah Lime & Stone Co., at Dolomite, Utah. (See PIT AND QUARRY, May, 1947, pp. 95-99.) Numerous other commercial installations are now in operation or in process of installation. Mr. Ellerbeck first gave a brief history and description of the machine which, he said, is not derived from any other type but is original. It is a continuous process and burns small sizes of stone.

In designing this kiln Mr. Ellernan said he started from scratch and designed it to meet six basic specifications, as follows:

(1) High heat efficiency. This ruled out radiation and induction furnaces, including rotary kilns, and hearth and grate types.

(2) Small stone. This one created many problems and also ruled out the shaft kiln.

(3) Control of temperature of calcining gases. Complete combustion outside the calcining chamber was selected for this reason.

Robert S. Boynton

(4) Uniform treatment. In order to obtain this considerable experimentation was necessary. The openings are now spanned by beams in staggered rows and the discharge from the calciners is regulated at different rates at different distances from the oven. Once this is adjusted few changes are necessary.

(5) Continuous. To show how this is attained he described the seals at the top and bottom of the calciner and the discharge mechanism.

(6) Automatic. He described briefly the gages and recorders which were described in detail in the PIT AND QUARRY article and which give the calciner amazingly uniform operation and product.

By maintaining a constant fuel-lime ratio in this calciner, said Mr. Ellerbeck, it becomes almost automatic and requires only an occasional manual adjustment. In answer to questions he pointed out that waste heat must be re-used for efficient operation. He also pointed out that in firing a normal shaft kiln the hottest gases hit the fully-calcined lime, and there is a constant danger of overburning. In the Ellernan calciner, he said, the down-firing effects calcination in gases only a few degrees over the calcining temperature, and the danger of overburning is small. The standard unit now being made has a capacity of 12½ tons of lime per day.

### FluoSolids Kiln

Frank S. White, assistant to the president of the New England Lime Co., Adams, Mass., spoke on the subject of the "FluoSolids Kiln". This company, it will be recalled, is the one which cooperated with the Dorr Co. in the development of the first FluoSolids pilot kiln built for lime manufacture and is now building a large commercial unit. Mr. White has been and is still closely identified with these developments and was the author of an article on the results to date which was published in the January, 1948 issue of PIT AND QUARRY.

Mr. White first traced the history and development of catalytic cracking which revolutionized the petroleum industry and on which the FluoSolids method is based. This method, he said, gives uniform control even in large units. The Standard Oil Development Co., according to Mr. White, licensed the Dorr Co. to develop this method for metallurgical and industrial applications. The first work was done on limestone with indifferent success because of the poor fuel economy and high dust loss with the minus-65-mesh material first used. Tests with material up to 10-mesh in size were more favorable, and arrangements were made to make a pilot installation at the New England Lime Co. because of the crystalline type of limestone there.

Mr. White then gave a brief description of the design and operation of this 5-ft.-dia. pilot kiln, which went into operation in July, 1946, and which was completely described in his January article in PIT AND QUARRY. The chief advantages of the FluoSolids Reactor, as detailed in his article, are:

(1) Close temperature control
(2) Low fuel requirements
(3) Low maintenance requirements
(4) Low auxiliary machinery upkeep
(5) High $CO_2$ stack gas availability
(6) Cost lower than rotary kiln

According to Mr. White the commercial reactor now being designed for installation in this plant will be 13½ ft. in diameter and 45 ft. high and will have five compartments.

This was also described and illustrated in the January article. It is expected to be in operation in about a year.

According to Mr. White, when the power goes off the kiln empties itself and operation must be resumed within 80 seconds. The pilot kiln produced 11 tons of lime per day at a fuel oil rate of 43 gal. per ton but better results—about 32 gal. of oil and a 5.6 ratio with coal—are expected with the commercial reactor. He also said that the reactor has produced good lime from ½-in. stone on experimental runs.

### Lubricants in a Lime Plant

*Lubricants in a Lime Plant* was the title of an interesting paper by O. K. Luther, sales supervisor for Ohio for the Socony-Vacuum Oil Co., Inc., New York.

Every producer, said Mr. Luther, should develop a program of correct lubrication, but before doing this it must be realized that in order for such a program to be successful it must be on a cooperative basis between the plant personnel and the lubrication engineer of the lubrication supplier. For best results he recommended that one man in an organization be made responsible for all lubrication, with the exception of electrical motors, power plant equipment, and cranes and shovels, which should be the responsibility of the men operating them. The man appointed lubrication engineer should, he said, know the plant and the equipment in it and should preferably be connected with the maintenance department.

Mr. Luther then outlined the duties of the lubrication supervisor in addition to doing the actual lubrication. The next step, he said, is installing a program of correct lubrication, which is the function of the lubrication supplier. The supplier should:

1. Make a complete lubrication study of the plant on the basis of:
   - plant production
   - maintenance cost
   - frictional losses
   - lubrication cost
   - time out of service
2. Make recommendations to improve lubrication by the use of correct lubricant, storage and handling of lubricants, application of lubricants, and reclamation of oils.
3. Provide engineering service to install program.
   - Follow program regularly
   - Train lubrication personnel
   - Report results to managements

Mr. Luther then described the functions of the lubrication company's engineer and the preparation of lubrication cards, charts, conferences, discussions, personnel training, etc. A book published by Socony-Vacuum, he said, covers this subject in detail and a copy can be had for the asking.

### Centralized Lubrication

*Centralized Lubrication* was the subject of a talk by A. J. Jennings, vice-president of the Farval Corp., Cleveland, Ohio, one of the largest manufacturers of this type of equipment. According to the speaker the continued operation of mechanical equipment depends largely on assured lubrication. New plants now have, he said, crews of workers who are largely inexperienced and this makes some method of automatic control more important than ever before. He gave a brief history of lubrication, pointing out the slowness of industry to accept important new improvements.

The first step in this direction, said Mr. Jennings, was the mechanical oiler, which has a definite but limited application. He then traced the development of centralized pressure lubrication systems, describing the trend from the piston type to the present hydraulic valve units, and the various types now being made from the smallest manually-operated units to those capable of handling up to 300 fittings. With charts he showed how a modern central system functions and how it insures that every bearing will get the exact amount of lubricant it needs at all times. Such a system, said Mr. Jennings, not only safeguards the equipment, but in many applications it also prevents accidents to workers who would otherwise have to lubricate the machinery while it is in operation or might have to venture into dangerous places to do this work. A typically dangerous machine, the overhead electric traveling crane, is, he said, one of the many machines presenting such hazards which in this case includes exposure to high-tension power lines as well as the other usual hazards.

### Dust Elimination in Lime Plants

In a discussion of the subject of *Dust Elimination in Lime Plants* Irving Warner, vice-president of the Warner Co., Philadelphia, Pa., gave the results of tests made by his company and others with various makes and types of dust collectors on different kilns. So far, he said, there have been no other types developed which can approach electrical precipitators in efficiency but he suggested that producers keep an eye on the supersonic types being developed. Various types of wet collectors were also described. Other producers described various collectors of their own design which failed to meet requirements and agreed that it is cheapest in the long run to buy a collector.

### Question-and-Answer Session

Most of one afternoon was devoted to a question-and-answer session on lime plant problems which was presided over by Fred D. Witmer Jr., Ohio Hydrate and Supply Co., Woodville, Ohio.

In a discussion of the best location at which to record temperatures in rotary lime kilns one producer told of locating a thermocouple just below and beyond the end of the burner pipe. Another told of measuring the amount of dust loss through the kiln stack by means of a special photo-electric device connected to a recording dial.

The subject of packaging and loading also received some attention. J. Gruber of the St. Regis Paper Co. said that the quality of paper available for bags is now improving as the temporary shortage of paper is easing up and more attention is being paid to quality. As a suggestion for the protection of bags during shipment he said that phosphate producers are using raw phosphate and others are using sawdust in the bottom of the cars. He also pointed out that the choice of the proper bag for the shipment of any perishable material had to be made by weighing the amount of protection necessary against the cost of the bag, as the cost of the best bags is high. Some industries, he said, prefer a small amount of breakage to high-cost bags.

The discussion finally got around to the old bugaboo of kiln rings and how to prevent their formation. There seemed to be general agreement that impurities in the coal and forcing a kiln for overproduction are the main causes. Several operators also agreed that aiming the flame down into the rolling charge and using uniformly-sized feed are of some help in preventing ring formation, as is also the use of finely-ground coal. One said that pointing the flame down brought the ring closer to the end of the kiln, where it was more accessible. There was no agreement on the best method of removing rings.

# the lime plant operator

PIT AND QUARRY

by WOLF G. BAUER
Consulting Engineer

## ECONOMICS OF PLANT OPERATION

### Part I. Time-Profit Relationships

another P&Q exclusive

IN ORDER to make this department of widest practical use and interest to lime and other nonmetallics plant operators, it may not be entirely out of place to look up from specific technical unit process details once in a while and analyze the operation in the light of costs and profits relative to the overall business viewpoint, and specifically to the scientific approach of investing the plant improvement dollar.

All technical research, all process and equipment improvement, all new design engineering, and all plant management and production efficiency studies and programs have one thing in common—namely, the achievement of maximum *rate* of profit for the owners, investors, and employees. Notice that emphasis is accorded the term "rate", for it is the *time interval* in which the profit is made that determines the profit level of the business in relation to its potential optimum operating schedule and maximum earning capacity.

**Minimum Cost vs. Maximum Profit** Strange as it may appear to an outsider, there seem to be some differences of opinion on the part of various members of management as to what constitutes the "best" operating or production level of a particular plant. Of course, when the market demand or gross income of the particular business is a constant or limited quantity, profit will depend on the cost per ton of lime. However, when existing or potential lime demands exceed production, cost per ton of lime ceases to be the only basis upon which to compute the optimum plant operating conditions and profits. There are instances, however, where we have come across operators who had never taken the trouble to compare relative earning margins on bases of cost per ton of lime as against profit per time interval. Although cost breakdown will reveal very large differences in relative costs and profit potentials with different plants, yet the engineering analyses and fundamental economic balances and cost equations remain the same for all operators.

A hypothetical case may best illustrate the relationship under discussion, namely the contention that the point of maximum profit is not necessarily that at which lime can be manufactured the cheapest on a per-ton basis.

Let us say a lime plant consists of a 100-ton rotary, and two 30-ton shaft kilns. At 160 tons of lime output per day, production cost is $5.00 per ton, and average selling price is $7.50 f.o.b. plant.

An engineering analysis has established the fact that an increase of 40 tons of lime per day can be obtained either by certain alterations and additions to present kilns and quarry equipment, or by adding an extra kiln to the plant. However, it was also determined that such extra capacity would result in extra charges due to a disproportionate amount of added labor, extra shifts or overtime, increased maintenance and repair costs, higher product handling costs due to resulting overcrowded conditions, plus extra and higher depreciation charges in view of the market situation. Under these conditions, the cost of manufacturing the new total 200 tons per day was placed at $5.30 per ton, or an overall increase of 30 cents per ton.

The problem then becomes an economic equation. How high may the cost per ton of additional lime become before plant earnings are reduced below the existing level; or, stated differently, how low may the selling price of lime drop before the earnings due to increased output reach their former level? Well, let's see what happens:

200 tons at $5.30 per ton minus 160 tons at $5.00 per ton equals 40 additional tons at a minimum profitable sales price "X."

$$X = \frac{1060 - 800}{40} = \$6.50 \text{ per ton.}$$

Under these simplified hypothetical conditions, daily earnings will have increased from (160) (7.50 — 5.00) = $400 to (200) (7.50 — 5.30) = $480. In other words, it costs $6.50 per ton of lime to manufacture the extra 40 tons, and as long as the price of lime does not drop below this figure, the increased daily lime production will show an increase in net plant earnings, even though the production or manufacturing cost per ton has increased substantially.

(Note: Any similarity of these figures with those of your cost accountant's are purely coincidental and wishful thinking.)

In charting a scientific approach to the various plant economy equations the afore-mentioned data may serve as a starting point for many others. If, for instance, the present

or potential market does not warrant such as increase in production, or it is not possible to sell a lower-priced lime in larger quantities, then the economic equation will bet set up for lowest cost per ton or per day, rather than largest profit per day or month.

In the earlier illustration, in order to achieve an equivalent increase in earnings through reductions in cost per ton, a saving of $0.50 per tone of lime [$(160)\ (7.50 - X) = 480$; $X = \frac{1200 - 480}{160} = \$4.50$; $\$5.00 - 4.50 = \$0.50$] over existing production cost must be achieved. The writer's experience has indicated that it is considerably easier to increase earnings by increasing profit per unit time, than to increase earnings by lowering the cost per unit product. The exception to this, of course, is found in exceedingly inefficient and outmoded plants. The plant operator, however, should make or have made a careful engineering analysis, and equate his costs on these two bases. By constructing graphs of these equations, management can find the quickest, surest, or lowest investment approach to increased earnings. In these computations, great care must be exercised to differentiate fixed or unaffected costs from variable or affected costs. Where fixed charges affect only the relative position of the profit or cost curve, variable charges determine its slope or rise at the various levels of output, profit, cost, or against whichever variables it is plotted.

**Cost Reduction Is Relative** In many lime companies there often exists a considerable gap in the understanding of the economic balance between business managers on the one hand and operations or department supervisors on the other. When such superintendents, supervisors, control technicians, or foremen enjoy considerable administrative freedom, or exert a strong influence on the decisions of upper management, unit process or unit job evaluations and changes may be inaugurated ahead of maximum overall profit considerations. Often a continued grievance in one department of a spur-of-the-moment cost-saving plan may finally assume such over-evaluated proportions that money is spent primarily to alleviate the clamoring, rather than on the established next-in-line item of maximum earnings established through an unbiased engineering survey and cost equation.

The installation of an extra conveyor, bin, automatic controller or feeder, or the rearrangement of a system may eliminate a man-shift in Department B. However, cost equation comparisons or graphs may disclose that within the company's development budget limits, it is possible to achieve three times this saving by spending equivalent or more money in Department C. To make things appear even worse, Department B may actually suffer through this change and produce henceforth at a higher cost per ton of lime handled or processed. (A change in fuel or stone, for example, may cause such a condition.) To explain to department head B that it is more profitable to the business to operate his department at a loss or higher cost is certainly not conducive to departmental tranquility. However, this writer feels that upper management can obtain departmental cooperation reflecting in greater profits if it makes the effort not only to analyze and catalog the various profit and cost equations, but also to acquaint and teach its staff the fundamentals of the time-profit, the unit cost-profit, and the time-cost bases of economic balance computation.

In order that the improvement dollars be spent in sequence of descending order of earnings, accurate relative production costs of the various departments must be established.

**Cost Divisions** For purposes of analysis and comparison, cost break-down must *not* be made according to the easiest bookkeeping method, or in conformance with existing production or operation records. Cost break-down, to be of practical value in this scientific approach toward the spending of the improvement dollar, must be divided and grouped according to interdependent divisions of process equipment, labor, and production stage. It should be understood, however, that such cost finding is only for periodic use, and need not have any relationship to the current system in use. It is a job to be done with, not to perpetuate if it does not fit the particular business style in use.

It should be obvious that the cost accounting department can determine only certain costs as needed for special analysis, but that it is not in position to set up the equations which will show the economic balance under various improvement dollar investments. This is simply because it does not have the technical and production knowhow which will influence costs under various conditions. By the same token, the engineer or production specialist, who is familiar with the many methods and costs of increasing efficiency or production, cannot alone set up these working equations and balances without having first acquainted the office with his cost break-down needs, and then obtained the figures required for his synthesis. Yet, close teamwork and cooperative purposeful research between the cost accountant and the company or outside engineer seems more often the exception than the rule. It is to upper management's highest interest to make the improvement dollar represent the maximum-earnings dollar by initiating such a cooperative analysis at yearly or other periodic intervals.

Next month's discussion will indicate some of the steps involved in setting up a guide for the intelligent spending of the "maximum returns" dollar.

(*To be continued*)

## Use of Compressed Air

(*From page* 97)

their efficiency is most apparent in soft rock, in ground interspersed with mud seams, or in which there may be considerable variation in hardness in the same hole. When the ground is relatively soft, as in limestone, 6-foot steel changes are practical, this being another advantage of using the wagon drill. Also, when the cuttings are coming away from the bit profusely, as in any soft ground, the operator of a wagon drill can feed the drills up and down rapidly with extra blowing turned on, thus avoiding stuck steels.

In quarry drilling, the wagon drill in many instances has replaced the well drill, where the depth of hole to be drilled is within its capacity. The smaller, more closely-spaced holes of the wagon drill provide better distribution of powder, improving fragmentation and eliminating secondary drilling and blasting.

*Pneumatic Diggers*—These handy, light-weight, reciprocating tools are commonly used for loosening clay and hard ground. One man with this type of tool can loosen up as much material as two or three men can throw out with hand shovels. Used with a moil or pick point instead of a spade, this tool frequently serves as a pick for excavating hardpan.

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The use of cement in building material was known to the Egyptians in 400 B.C.

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The United States produces about 40 percent of the world's minerals.

• The guests who enjoyed Ingersoll-Rand hospitality at the Quarrymaster preview.

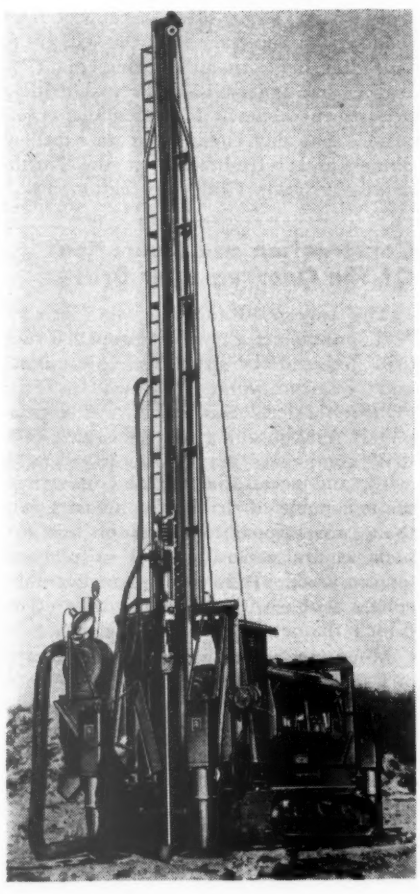
# Editors of Technical Papers Attend Showing of New-Type Rock Drill

**By WALTER E. TRAUFFER**

**One of the editorial policies of PIT AND QUARRY has always been to take advantage of every opportunity to bring before its readers first-hand information on important new developments of all kinds affecting the industries it covers. This includes important equipment advances, and whenever an opportunity has been afforded or an invitation was extended, an editorial representative has been sent to get first-hand information, often at great inconvenience due to the press of other duties. In line with this policy the invitation of the Ingersoll-Rand Co. to attend the unveiling of the "Quarrymaster" was gladly accepted. Similar invitations from other manufacturers of equipment important to this field will, as always, be gladly received, and a member of the editorial staff will attend such showings if it is humanly possible.—The Editor.**

The Ingersoll-Rand Co. on Thursday, February 5, at its Phillipsburg, N. J., plant, held a highly successful preview and demonstration of the new "Quarrymaster" rock drill, which it is offering to the quarrying, strip mining and construction fields. Up until this day little definite information had been released about this machine but it was rumored to represent a tremendous advance in drilling efficiency and economy within its scope of application. That these rumors are founded on fact was amply demonstrated to the many editors of engineering trade publications and general business magazines who attended the first official showing of this machine. These editors can now personally attest to the drilling speed, mobility, ease of operation and basic simplicity of the "Quarrymaster" and to the fact that two men can operate it with ease. At Phillipsburg that day the machine did all that was claimed for it under actual operating conditions and in snow and near-zero temperatures.

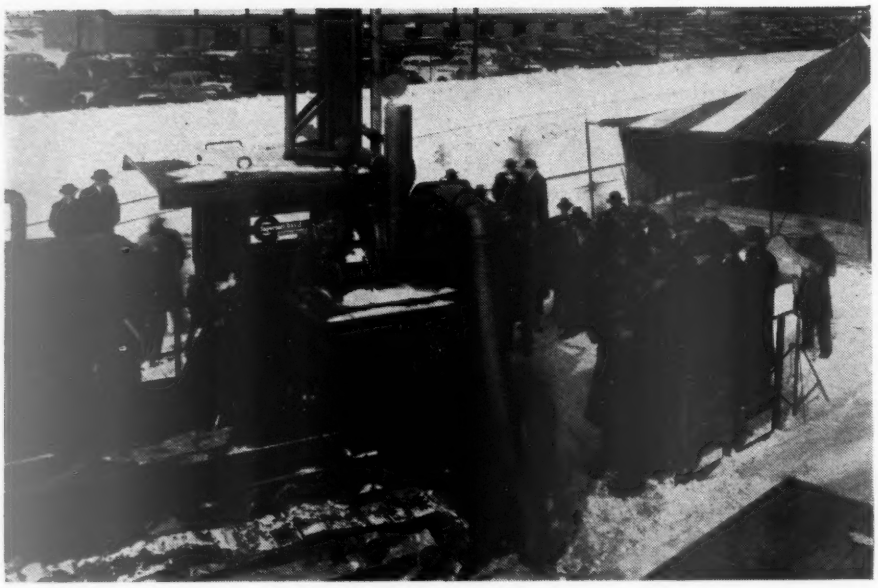
• The Quarrymaster.



A very brief description of the "Quarrymaster" given at the recent National Crushed Stone Assn. convention in Cincinnati and other information had prepared the writer for a complicated machine involving perhaps some new and revolutionary features. There were none. The entire machine is revolutionary only because it combines for the first time and on a larger scale various items of equipment which have been proved by many years of operation. Basically it is an oversize wagon drill, self-propelled on a crawler mounting, and it carries its own engine, compressor and dust collector. Four hydraulic jacks, one on each corner, quickly level up the machine for operation. Any experienced driller should have no trouble adapting himself to this machine.

In the matter of hospitality and dignified showmanship the officials and staff of the Ingersoll-Rand Co. also did an excellent job. Every effort was made to insure the arrival of the guests at the plant at the appointed hour, and a well-planned itinerary for the day went forward without a hitch. After registration in the main office the guests were escorted to a near-by building where a "Quarrymaster" was on display.

L. H. Geyer, of the Ingersoll-Rand advertising department, made a brief welcoming speech in which he mentioned some of the reasons for this party and briefed the program to follow. He then introduced M. L. McCormack, manager of the Rock Drill Division, who briefly reviewed the developments leading up to the realization for the need of such a drill and the long period of research and development which followed. There are, he said, several machines out in the field which have been working for months, and many are on order. Mr. McCormack then described some of the more important applications which may profoundly affect



• The visitors witness a remarkable outdoor demonstration of the Quarrymaster.

present methods and practices in the quarrying, mining and construction fields.

W. A. Morrison, engineer in charge of rock drill engineering, then described the machine in some detail, pointing out the various important features and the reasons for them. This description and his answers to many questions made even more apparent the exhaustive tests, sound engineering, and careful preparation which preceded the unveiling.

Then followed an outdoor demonstration with another "Quarrymaster" which was quickly moved into place over a hole which had previously been sunk through about 20 feet of overburden to the surface of the rock underlying this section. The machine was quickly leveled up and

• Quarrymaster drill, showing feed chain, jack, steel centralizer and dust-hood.

the observers were given an impressive demonstration of drilling with and without the dust collector. This drill continued to operate throughout the day and when the guests were reassembled at this point late in the afternoon, the footage drilled exceeded the claims made for it. Many of the observers clocked the progress over long periods and found that a foot of hole was drilled every four to five minutes in this rather hard and tough blue limestone, and that it averaged about 200 blows per minute. In the elapsed time of 4 hr. 30 min. a total of 47 ft. of hole was drilled—an average of 10.4 ft. per hr. The actual drilling time was 3 hr. 29 min., giving an actual net drilling speed of 13.4 ft. per hr. The detachable drill bits averaged 20 ft. before replacement for re-sharpening.

The visiting editors were taken for an excellent luncheon to the Harkers Hollow (New Jersey) Golf Club. In the afternoon there was an escorted tour through the company's metallurgical, drill testing, advertising and printing, and drill engineering departments and the museum of rock drills. The scope of these departments made it unnecessary for the guests to visit the huge manufacturing plant to realize that Ingersoll-Rand's rock-drilling department alone is a tremendous enterprise. The day ended with an excellent dinner and refreshments at the Northampton Country Club near Easton, Pa.

## Construction and Operation Of The Quarrymaster Drill

The Ingersoll-Rand Co., Phillipsburg, N. J., announces a new self-propelled rock drill designed for strip, open pit mining and quarry work. Known as the "Quarrymaster," this machine is a completely self-contained unit consisting of a drill, compressor plant, propulsion equipment, and accessories. The Quarrymaster is capable of drilling at a faster rate than conventional machines of this size such as are generally used in pit and quarry work. It is easily maneuverable, collars a hole with ease, and drills up to 6-inch diameter and 70-foot depth.

Mounting an air-operated, piston-type rock drill that strikes more than 200 blows per minute, the Quarrymaster has an unusually high rate of rock penetration. A patented valve action and power cycle insures maximum efficiency and drilling speed, while maintenance is reduced to a minimum by utilizing a cushion of air to bring the piston to rest before it can strike the front head. Feeding of the drill is accomplished by an air motor which drives the feed chain. A conveniently located throttle allows the operator to exert accurate control over the drill feed, a feature which is particularly valuable in drilling through slips and seams where a close degree of regulation is necessary. A drill-steel centralizer guides the drill steel until the bit is well-started, permitting quick and easy collaring of holes in the most uneven ground.

Bits used with the Quarrymaster are light in weight, long-wearing, and are easily changed. In drilling, the bit is automatically rotated by a mechanism which turns it into a fresh cutting position for each blow. The amount of rotation is controlled so that the bit will cut with maximum efficiency, making the Quarrymaster truly a rock-cutting machine. Chips are removed by passing compressed air down through the hollow drill steel, forcing the cuttings up to the surface through the space between the steel and the walls of the hole. When the cuttings reach the surface, they are gathered by a motor-operated dust collector. In addition to saving the time which would otherwise be lost in bailing, this method of removing cuttings permits the bit to strike a clean surface with each blow, so that no power is lost in drilling through previously-cut material.

Air is supplied by an Ingersoll-Rand KA-500 Mobil-Air compressor mounted on the Quarrymaster frame. This time-proven compressor plant has been used successfully by thousands of contractors, miners, and quarrymen. It can be furnished with gasoline-engine, oil-engine, or electric-motor drive.

Mounted on generous-sized crawlers powered by Ingersoll-Rand air motors, the Quarrymaster is easily moved from place to place. Extremely sensitive to control, the air motors permit spotting the Quarrymaster in exactly the position desired, and are sufficiently powerful to move the entire unit up a 30 percent grade. Four independently-controlled

(*Continued on page* 109)

• The centralized controls are conveniently located in the cab.

# personal mention

R. C. Ried

R. C. RIED will be in charge of a study to be conducted by Knowles Associates for the Corporacion Venezolana de Fomento. The object of the mission will be the construction of new plants and the modernization of existing units of the cement industry in Venezuela.

Mr. Ried, who recently engineered such a project for the National Resources Commission of China, a project described in the December, 1947, issue of PIT AND QUARRY, left for Caracas by plane in January.

From Port-of-Spain, Trinidad, West Indies, comes the announcement that E. H. BORDE of the Public Works Department has been appointed as manager of government quarries. This is a newly-created post.

Among the newly elected directors of the Merchants' and Manufacturers' Association is ROBERT MITCHELL, president of Consolidated Rock Products Company, Los Angeles, Calif.

The following changes in the staff of the Ideal Cement Company have been announced:

CLAUDE RODARMEL, formerly superintendent at Ada, Okla., has been made superintendent of the Southern Division.

GAYLE N. DAVIS, who was plant superintendent at Superior, Neb., succeeds Mr. Rodarmel as plant superintendent at Ada, Okla.

F. G. MEYERS, who was formerly plant superintendent at Portland, Colo., is the new plant superintendent at Superior.

S. A. GRETENCORT, replaces Mr. Meyers as superintendent at Portland. He was formerly in the general manager's office in Denver.

JOHN W. BAKER, formerly mill foreman, is now assistant superintendent at Portland.

CHARLES A. REITER succeeds HOWARD L. SLEEPER as cashier of the Colorado Portland Division. Mr. Sleeper has retired from his position.

Two promotions have been announced by Universal Atlas Cement Company, as follows:

WILLIAM O. LAWRENCE, manager of the firm's plant at Leeds, Ala., is advanced to assistant manager of the larger plant at Buffington, Ind., and JOSEPH L. HOHL, assistant manager of the Hudson, N. Y., plant, has become manager at Leeds.

Mr. Lawrence has been manager at Leeds since March, 1945. He has been affiliated with Universal Atlas since 1933, having served in various capacities since that time. Mr. Hohl joined the company in 1926. Twelve of the intervening years were spent with other firms, including the Coplay Cement Manufacturing Company. He rejoined Universal Atlas in 1945 as assistant to the plant manager at Hudson.

W. P. Sabin

WILBERT P. SABIN, whose entire business career during the last 50 years has been spent in the service of only two companies, has announced his retirement from active employment as vice-chairman of the executive committee of the Ash Grove Lime and Portland Cement Company, Kansas City, Mo.

Mr. Sabin came to the Ash Grove company from the Singer Sewing Machine Company in 1908 as general auditor. His promotions were rapid, and as assistant to the president, and executive vice-president he served on many committees of the Portland Cement Association, National Lime Association, and National Safety Council.

Mr. Sabin has always been greatly interested in plant safety activities, and as a member of the Portland Cement Association's accident prevention committee, aided in the formulation of practices and policies which have contributed to the outstanding safety record of the cement industry during the past generation. He will continue to be a member of the board of directors of the Ash Grove company.

SIDNEY J. MARKS has been elected vice-president of the Material Service Corporation, Chicago, and admitted to the company's Quarter Century Club. The announcement was released by Col. Henry Crown, chairman of the board of Material Service.


**K-P *Engineered* WIRE SCREEN**

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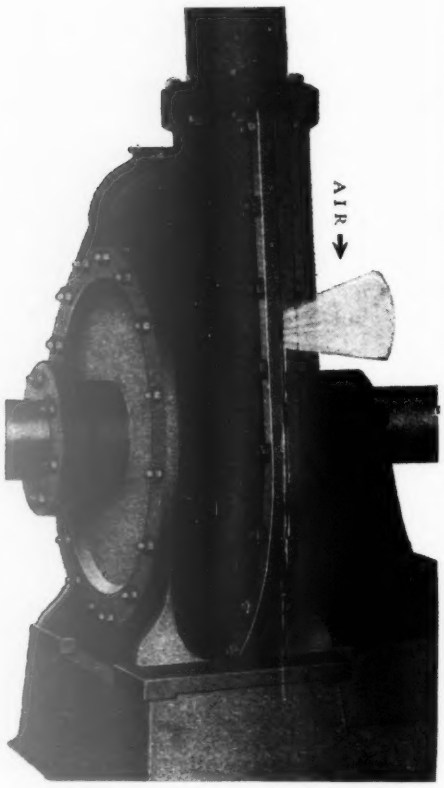
# WE WILL LET YOU WRITE YOUR OWN GUARANTEE

THAT YOU'LL NEVER WEAR OUT a "Tell-Tale" Centrifugal Sand and Gravel Pump Shell!

(Patented)




## HERE'S HOW AND WHY—

A length of flax packing is clamped between the halves of the split "Tell-Tale" Pump Shell to form an air-tight joint between the Shell and its Renewable Inner Lining.

When the abrasive action of the sand and gravel, or other materials being pumped, finally cuts thru the tough Shell Liner, (and a few minutes later thru the flax packing) air will be sucked into the nearest port hole in the Shell. (What appears in the picture above to be a spray of water spurting out of the Shell is the artist's conception of air being sucked into it.) This causes the pump to lose its prime and immediately stop pumping materials. It also serves as a warning to the operator that the Shell Liner has worn out.

ASK FOR COMPLETE DETAILS; STATE SIZE PUMP INTERESTED IN AND REQUEST BULLETIN "P" ON AMERICA'S HIGHEST PRODUCTION PUMP.

**PEKOR IRON WORKS**

DRAWER 909

**Columbus Georgia**


JAMES A. MURRAY, who became director of research for the Warner Company at the Cedar Hollow laboratory in 1930, recently resigned from this post. He will become associate professor in the department of building construction at the Massachusetts Institute of Technology. Mr. Murray will teach masonry materials and the chemistry of cements. In addition, he will have charge of the masonry material research laboratories.

While associated with the Warner Company, Mr. Murray contributed substantially to the firm's progress in developing its Super-Limoid system of continuous pressure hydration and in exploring the various problems involved in sand-carrying capacities and mortar mixes of lime and cement products.

CLARENCE R. WOLF, president of the New Jersey Silica Sand Company of Millville, N. J., became interested in an unusual hobby in 1927 when his firm acquired a tract of land for purposes of expansion. Holly grew in abundance on this land, called "pine barrens," and during the next Christmas season Mr. Wolf and his partner, the late Burdett C. Tomlin, sent a number of boxes of holly to customers as holiday greetings.

Today Mr. Wolf maintains an 11-acre holly plantation containing more than 1700 trees of various species which yield enough of the colorful greens for 800 Christmas boxes.

MELVIN H. BAKER, president of the National Gypsum Company, has been named chairman of the new Construction Industry Information Committee, which will undertake to inform the public about the "performance and progress of the building industry." More than 130 individual companies engaged in the manufacture of building materials and equipment, will participate in the program, conducted by the Producers' Council.

R. F. MCCONOCHIE, has been elected president of the Rock Island Sand and Gravel Co. He succeeds W. H. MCCONOCHIE, who becomes chairman of the advisory committee of the board of directors.

JOHN M. HOLLINGSWORTH was elected vice-president, W. F. LARKIN treasurer and H. J. LARKIN secretary and general manager.

# obituaries

HARVEY L. KNAPPENBERGER, a retired executive of the Oregon Portland Cement Company, died on January 15 in his home in Portland, Ore.

Mr. Knappenberger had been active in the cement industry with concerns in Pennsylvania, Illinois and British Columbia. In 1922 he went to Oregon to supervise the construction of the Sun Portland Cement Company's plant at Lime. With the merger of that firm and the Oregon Cement Company, he became secretary-treasurer of the new corporation. When he retired in 1941, he was vice-president and sales manager of the company. He was 61 years of age.

ROBERT E. DENNIS, 70, an employee of the Lehigh Portland Cement Company, died at Easton Pa., on January 28.

DALLAS T. ANDREWS, 70, a former employee of the Consolidated Cement Corporation at Fredonia, Kan., died on January 3 at his home. He had been associated with Consolidated since 1926.

THEODORE UEHLEIN, superintendent of the Carthage plant of the North Cincinnati Sand and Gravel Company, Inc., died on January 5 after a protracted illness. He had been superintendent at Carthage for the last 15 years. Mr. Uehlein was 46 years of age.

JAMES G. PARKER, former sales manager of the Buffalo Sand Company, Buffalo, N. Y., died in that city on December 28, 1947, after an illness of several weeks. Mr. Parker died on his 63rd birthday.

GEORGE E. EVANS, 59, a mill foreman at the Pennsylvania Dixie Cement Company's plant at West Des Moines, Ia., died on January 9 after an illness of several weeks.

MELVIN COLLINSON, a partner in the Collinson Stone Company of Moline, Ill., was killed instantly on January 19 near Cordova, Ill., when he was struck by a two-ton mass of frozen gravel at a quarry where he had been assisting employees. Mr. Collinson had operated the business with his brothers, Earl A. and Judson V., since 1944.

OMAR SMITH, CHARLES MARTINEZ, PASCUAL MARTINEZ and JERRY J. HAIRSTON, members of a blasting crew of the California Portland Cement Company, were killed by the premature detonation of blasting powder at the firm's Colton quarry on January 21.

## Quarrymaster

(*From page* 106)

hydraulic jacks are used in leveling up the machine, allowing a saving in time up to 15 or 20 percent of that usually required for conventional machines. Precise levelling is not needed with the Quarrymaster, for the holes drilled do not have to be vertical. The tower of the Quarrymaster is easily raised or lowered by utilizing the power of the feed motor. It can be raised or lowered intact, and the machine can be completely readied for operation in less than an hour. An auxiliary hoist is provided for use in raising or lowering the steel and for general utility purposes.

Additional features of the Quarrymaster include a sturdy, well-constructed frame and cab in which all controls are centralized.

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W. S. WESTON SR., president and treasurer of the Weston & Brooker Company, Columbia, S. C., died recently. Mr. Weston was a director of the National Crushed Stone Assn. and was known as as one of the top operating men in the industry.

EDWIN P. LUCAS, president of the Superior Portland Cement Company, Seattle, Wash., died recently at La Jolla, Calif., where he had been a patient in a clinic.

A. S. ROBINSON, a retired quarry superintendent for the Reliance Whiting Company at Alton, Ill., died recently after an extended period of failing health. He was 85 years of age. Mr. Robinson was in the employ of the Reliance Whiting for 23 years.

O. N. R. PFANKU, proprietor of the T. & P. Gravel Company of Oklahoma City, died recently at his home in that city after a heart attack. He had been ill for several months and died on his 54th birthday.

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## H. B. Strader Purchases Brandywine Gravel Pit

Harold B. Strader of Syracuse, N. Y., has purchased the Brandywine Gravel Company pit and equipment from J. C. Boyer. Engaged in the general contracting business in New York and an associate of the C. D. Murray Co., Mr. Strader is making a number of improvements at the plant, which is located one mile north of Greenfield, Ind.

The pit is equipped to produce high-grade gravel of six different screenings.

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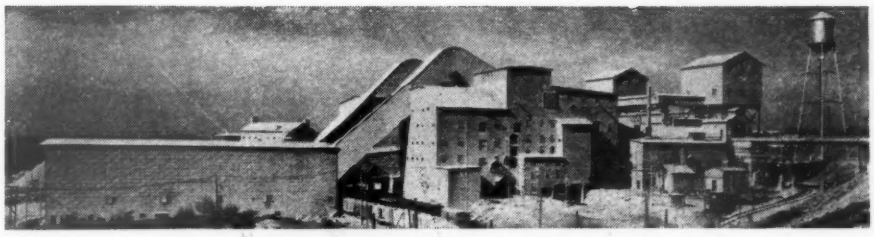
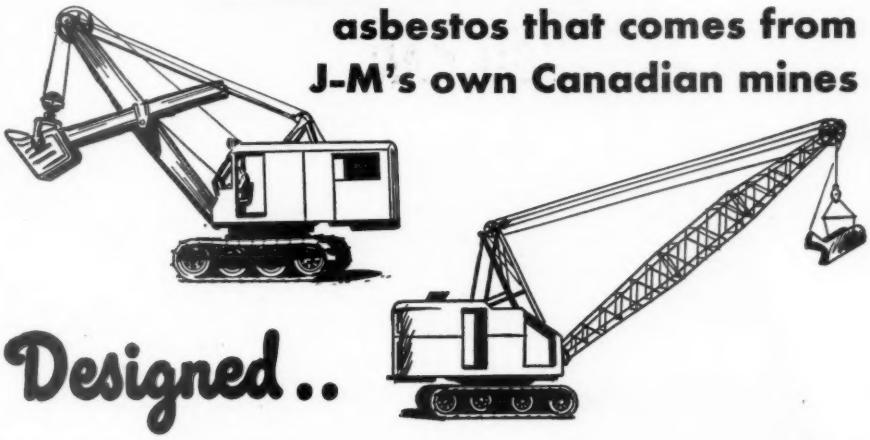
## Second Phosphate Rock Mine Opened in Florida by Swift

Swift & Company has acquired its second phosphate rock mine in Florida and will be able to increase its output by 50 percent in the near future.

The new washer and flotation plant, which was under construction for two years, has been completed at "The Rise," a site near Fort Meade where phosphate was first discovered in 1888 by E. R. Childers.

**Produced... from asbestos that comes from J-M's own Canadian mines**



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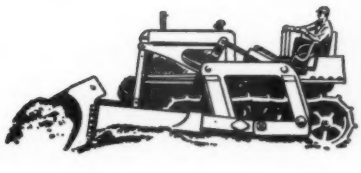

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LEADING INDUSTRIAL EQUIPMENT MANUFACTURERS have standardized on J-M Industrial Friction Materials for rugged service . . . sure stops. The reason—they know that Johns-Manville selects only the highest quality, long-fiber asbestos . . . then controls this quality right through to the finished friction material.

*Stay* with Johns-Manville and you're sure of the best! For help in selecting the proper style of J-M Friction Material, consult your nearest J-M Distributor . . . or write direct to Johns-Manville, Box 290, New York 16, N. Y.

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*Self-enclosed interchangeable units give you . . .*

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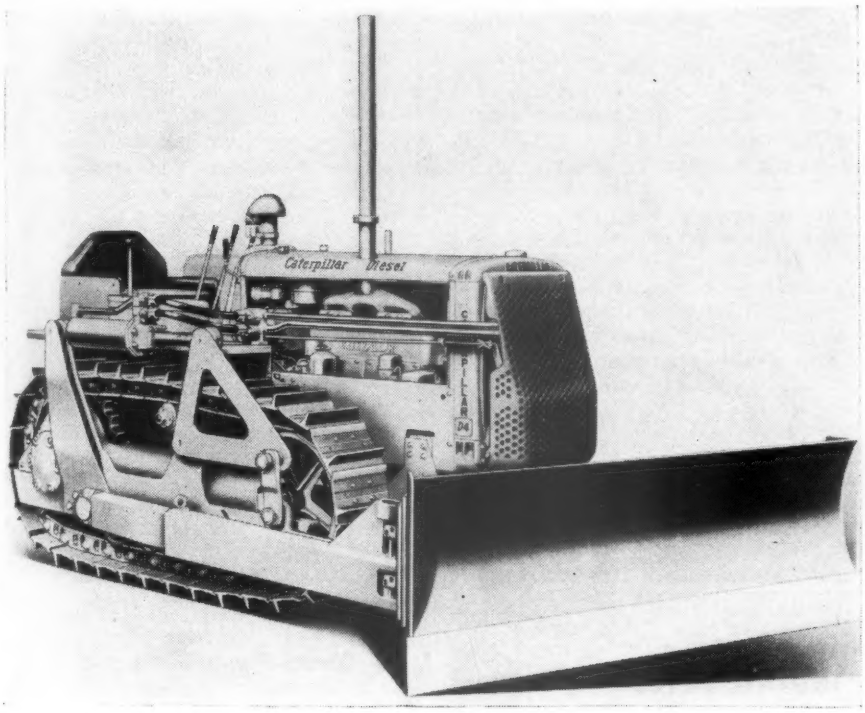
# new machinery and supplies

PIT AND QUARRY




Dozer with angling blade.

## ● Angling Bulldozer

An angling type, hydraulic-controlled bulldozer, designated "Caterpillar" No. 4A, and designed for exclusive use with the "Caterpillar" diesel D4 track-type tractor, has been placed in production by Caterpillar Tractor Co., Peoria, Ill.

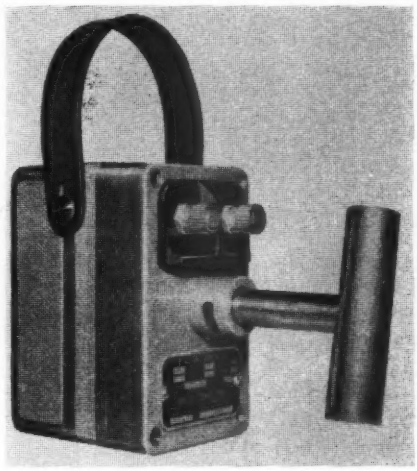
Supplementing the recently introduced No. 4S, the new machine provides either straight or angling type blades in the range of operations to which a tractor of this size is applicable.

The closed-type hydraulic system has the following features: a front-mounted, positive action, balanced vane pump, integral with tank and operating valve; a manually operated control valve; carburized pins connecting pistons, cranks and push arms; rapid blade action of 1.25 f.p.s.; and seamless steel lines coupled so as to provide direct oil flow from power cylinders to the hydraulic pump housing.

## ● Blasting Magneto

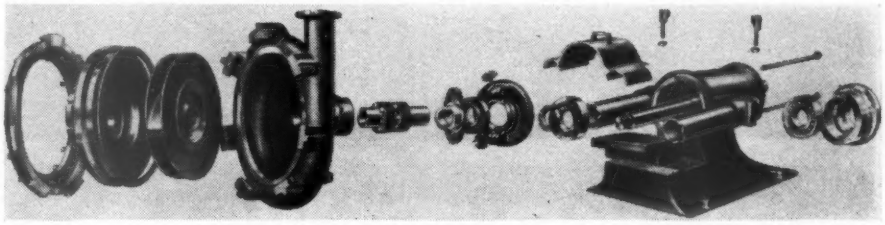
The Breeze blasting magneto, produced by Breeze Corporations, Inc., is a 1- to 10-shot machine, a blasting magneto which meets all safety requirements of the U. S. Bureau of Mines and carries its permissible approval No. 1602 for all types of blasting operations.

Its discharge is automatically limited to between 12 and 30 milliseconds (about 1/50 of a second). The design is such that a secondary explosion cannot occur. The voltage is at its peak when the switch is closed.



No secondary explosions possible.

The magnet material reportedly retains full magnetism indefinitely. There are no brushes, rotor windings, or commutators.



This exploded view shows one of the latest developments in pump design constructed for abrasive service. The complete assembly of shaft, bearings, and bearing stand requires only two bolts. Water end supports slip into sleeves on the bearing stand; the impeller screws on; and end plate clamps on with dogs or a ring. Individual water end parts subject to wear can be quickly removed and repaired or replaced . . . or the entire water end can be removed by sliding support tubes out of the sleeves. The stuffing box is readily accessible between the support tubes. These pumps are used in the handling of sand and in pumping gritty water for gravel and crushed stone washing. Nagle Pumps, Chicago Heights, Illinois.

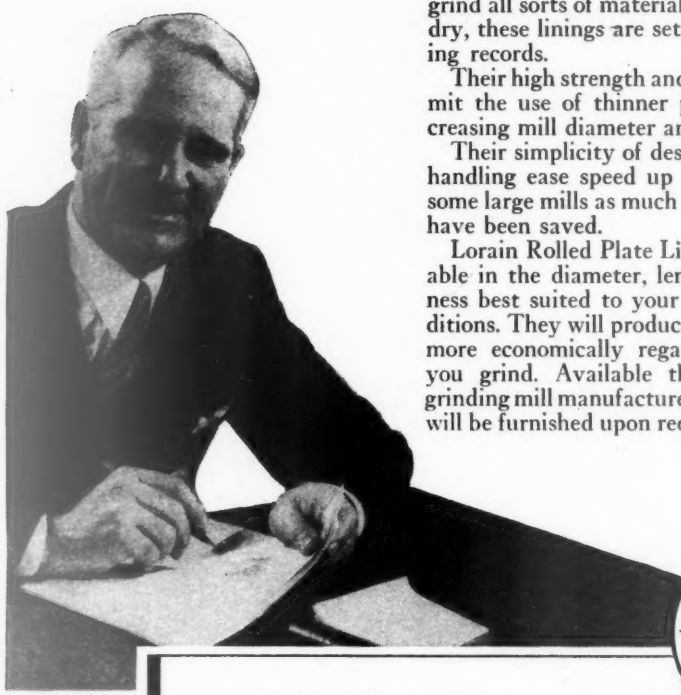
"Our U·S·S LORAIN ROLLED PLATE LININGS have reduced maintenance costs . . . decreased the number of replacements . . . given us more grinding time."

THIS is a typical report of mills using U·S·S Lorain Rolled Plate Linings. For in a large number of mills which grind all sorts of materials, both wet and dry, these linings are setting new grinding records.

Their high strength and toughness permit the use of thinner plates, thus increasing mill diameter and output.

Their simplicity of design and greater handling ease speed up installation. In some large mills as much as 12 man-days have been saved.

Lorain Rolled Plate Linings are available in the diameter, length and thickness best suited to your operating conditions. They will produce better results, more economically regardless of what you grind. Available through leading grinding mill manufacturers whose names will be furnished upon request.



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**For uniformly superior results . . .**
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Forged from new steel and accurately heat-treated to take the punishment of abrasion and impact throughout the longest, heaviest runs, U·S·S Lorain Grinding Balls maintain a standard of quality that insures uniformly superior results. These balls are available in all standard sizes from ¾" to 5" in diameter.

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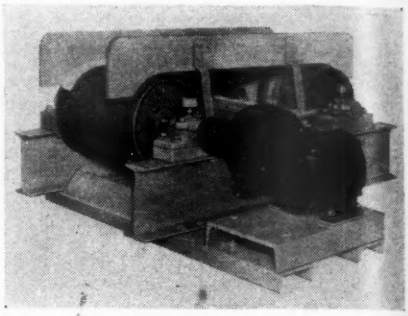
8-179

UNITED STATES STEEL


## ● Magnet Type Separator

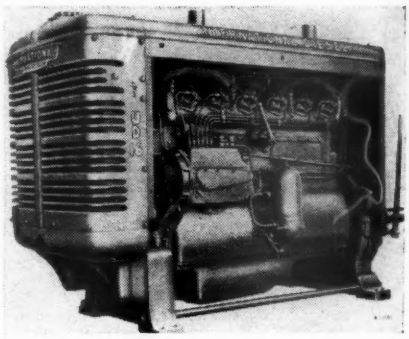
A complete line of self-contained horizontal and inclined magnetic pulley-type separators, each incorporating an Alnico magnetic "Perma-Pulley", idler pulley,



Magnetic separator.

endless belt and drive has been announced by Dings Magnetic Separator Company.

These units are designed to provide completely automatic removal of tramp iron from such materials as coal, rock, slag, cement, sand, clay, etc., where either protection of machinery or purification of product is desired. They are intended for installation at the discharge of chutes, hoppers and conveyor belts or they can be fed by hand or by various material handling devices.



Power for intermittent load power.

## ● Diesel Power Unit

International Harvester Company's UD-16 diesel engine and power unit has been designed to deliver intermittent load power, using a minimum of fuel for work accomplished. It is a four-cycle, valve-in-head type, with a compression ratio of 16.6 to 1.

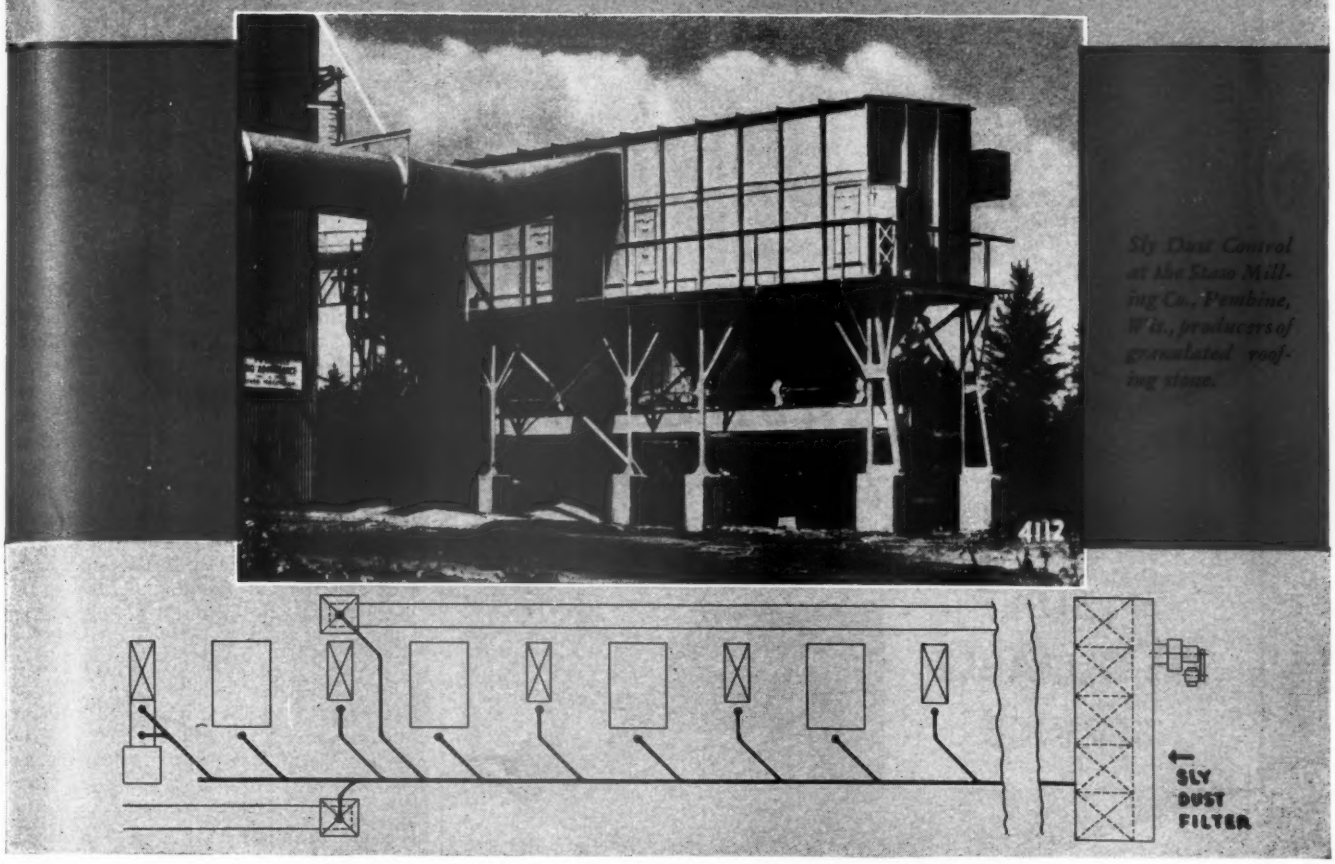
Complete assembly includes governor and fuel supply pump. The International twin plunger pump assures uniform injection and equal power from all cylinders.

A single lever at the starting position enables the engine to be started as easily as a gasoline engine of similar size. Positive lubrication is provided to all working parts, making auxiliary coolers and special oils unnecessary.

Cylinder sleeves are heat-treated to file hardness for longer life. They may be replaced with identical service parts. A V-belt driven, positive centrifugal pump with full floating shaft circulates a large volume of coolant through the cylinder head jackets and around the full length of the cylinders.

## • An Aid to Greater Production

# SLY DUST CONTROL




*Sly Dust Control at the Stave Milling Co., Pembine, Wis., producers of granulated roofing stone.*

**Diagram of connection of Sly Dust Filter with various sources of dust—crushers, screens, conveyors and elevators. At these points dust-laden air enters hoods and is drawn through piping to the filter—dust filtered out and easily disposed of.**

IN these days of high-speed production, Sly Dust Filters are of vital aid in making cleaner plants, helping maintain quality of product, saving maintenance costs, and protecting health and safety of employees.

*Briefly, Sly Dust Filters offer you:*

**(1)** Greater filtering capacity because of more filtering cloth
**(2)** Taut bags (patented) save power and improve dust removal
**(3)** Bags more easily replaced
**(4)** Automatic control (any degree) minimizes or entirely removes the human factor
**(5)** Simpler shaker mechanism results in savings in maintenance and operation

Whatever your dust problem, write us. Sly engineers are experienced with all kinds of industrial dusts. We shall be glad to tell you what advantages you, too, can realize, and give you full particulars.

That the advantages of Sly Dust Filters—their savings in space, power, and maintenance—are widely appreciated in the Cement Industry is evident from the fact that Sly is a 4 to 1 favorite in this industry.

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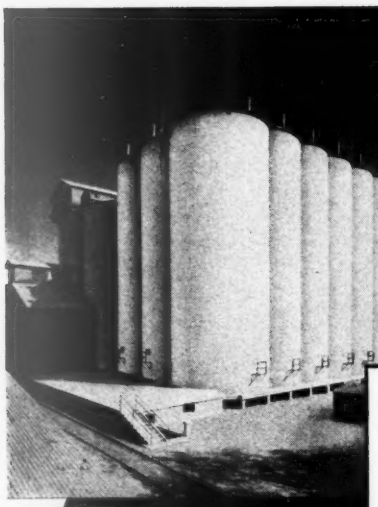
# STORAGE BINS



**. . . DESIGNED *for* ECONOMIC HANDLING**

**. . . BUILT *for* DURABLE SERVICE**

Need we say more? These two statements sum up the policy of The Nicholson Company in connection with Concrete Storage Bins. Design and construction of concrete storage bins with complete material conveying systems has been the Nicholson specialty since 1914 . . . much of this work not only *for* but made possible *by* the cement and aggregates fields.

It will be our pleasure to serve you in connection with the storage and handling facilities you require.

**Construction costs are not coming down!**

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CONSTRUCTION · CEMENT-OIL-CHEMICALS

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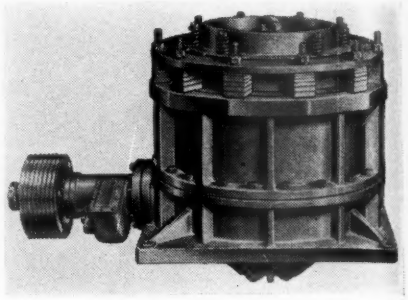
## ● Reduction Crusher

The new Kue-Ken "Gyracone" is designed to operate on the Kue-Ken principle of "crushing without rubbing." Another outstanding feature of the Gyracone



Crushes without rubbing.

is its reputed strength and ability to accept an unrestricted or "choke" feed, avoiding the necessity of mechanical feeders in the usual installation.

Although these Gyracones are extremely low, squat machines (for example, 30¼ inches high in the 18-in. crushers), the main shafts are exceptionally long between the bearings. Shaft diameters are also abnormal, ranging up to 38 percent of the diameter of the crushing head. The unusually large bearings required to fit these shafts insure low bearing pressures and permit perfect lubrication at all times.

Gyracone crushers are also provided with oil filters, oil tank, gauge and an automatic shutdown device to prevent lubrication failure. Another simple safety device in the driving pulley provides overload protection against "tramp iron" or other uncrushable material that might get into the crusher. Standard construction is of all-steel frame, forged steel shafts, alloy bronze bearings and manganese steel mantles and concaves. Provision is made for the quick and positive adjustment of the crushing faces, thus regulating the size of the crushed product.

## ● Underground Tractor

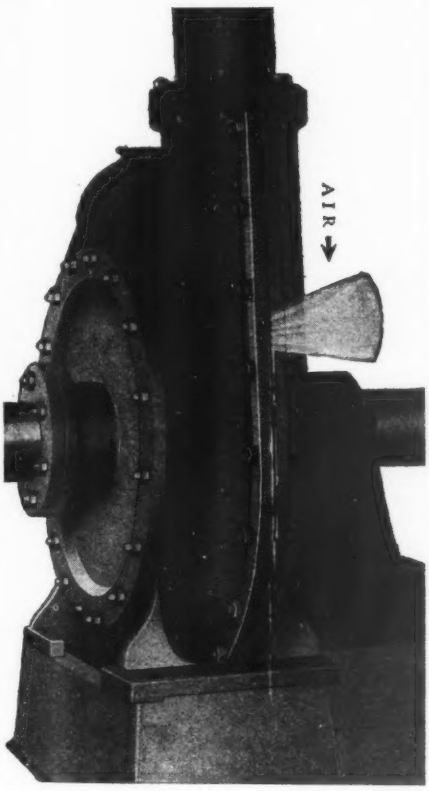
A new Allis-Chalmers HD-5 diesel recently developed is equipped with an oxygen bottle to eliminate the exhaust of toxic gases during underground operations. Contrary to popular belief, carbon monoxide is always present in diesel engine exhaust, even though the amount is considerably less than caused by gasoline engines.

Oxygen is injected into the engine exhaust manifold by means of small tubes extending from the oxygen bottle mounted on the rear of the tractor. When controlled quantities of oxygen are injected, the temperature of the diesel engine exhaust gases is high enough to support combustion and the inflammable gases are ignited. Burning converts the carbon monoxide to carbon dioxide in quantities harmless to men. Although mining laws and regulations of several states have prohibited the use of internal combustion engines in underground operations, development of detoxification equipment has induced many legislatures to revise their laws.

## ● Sand and Gravel Pump

The "Tell-Tale" centrifugal sand and gravel pump "with the split shell that never wears out" is thus described by the manufacturer, the Pekor Iron Works. A replaceable inner lining is clamped between the halves of the outer shell and kept airtight by a length of packing pressed between these halves.

Made of iron manganese and alloy steel, these liners, which cost about one-half as much as the outer shell, together with their packing keep the outer shell airtight and prevent wear at this point. When a liner has been worn through by abrasive action, the aggregate soon cuts away the packing, air is sucked into the liner, the pump loses its prime and stops pumping. Cessation of pumping and an idling motor warn the operator that it is time to stop for a liner replacement job.



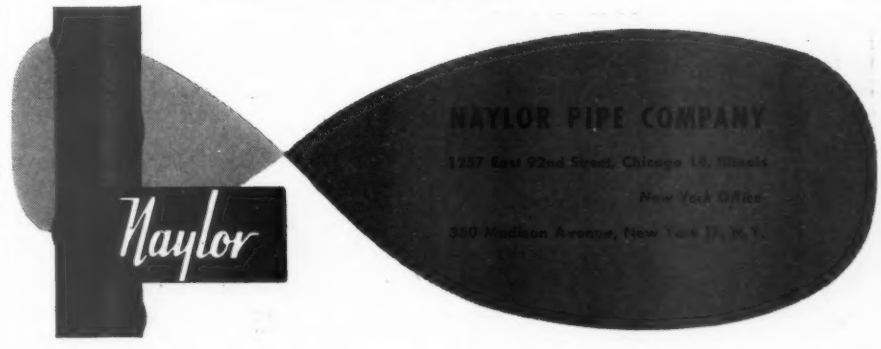

Features split outer shell.

The impeller shaft assembly is provided with a threaded thrust-collar which permits fractional adjustments of impeller within the liner. Bronze bearings and collar are so positioned that they are easily accessible for repairs or adjustment. The pump is made in 4-in. (bronze bearing and ball bearing), 6-in. (standard-duty), 6-in., and 8-in. (heavy duty) sizes.

**Complete but condensed information on nonmetallic minerals production is contained in the statistics chapter of the Pit and Quarry Handbook.**

*It's* **NAYLOR** *Light-weight* **PIPE** *with* **NAYLOR** *Wedge-Lock Couplings*

Here's a combination that's hard to beat:— Naylor light-weight pipe for strength, safety and easy handling, and Naylor Wedge-Lock couplings for quick, positive connections. The two, combined in lines for high as well as low pressure service, are ideal for many applications in the mining field.



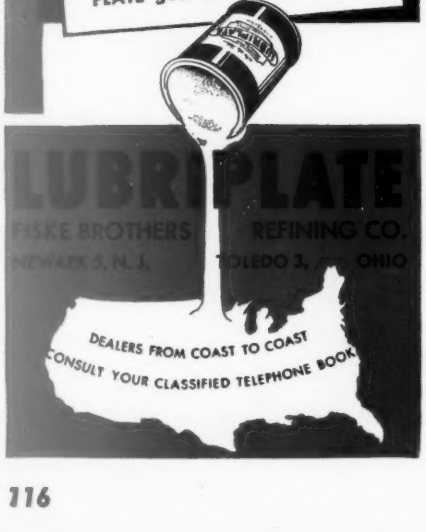
lubrication at terrific speeds

Operation speeds of many production machines have reached an all time high. Speeds above 25,000 R.P.M. are common today. There are LUBRIPLATE lubricants especially well adapted for high speed use. They reduce friction to a minimum, arrest progressive wear and protect against rust and corrosion. There is a LUBRIPLATE lubricant for every need regardless of operating conditions. Write for particulars.

LUBRIPLATE
Lubricants definitely reduce friction and wear to a minimum. They lower power costs and prolong the life of equipment to an infinitely greater degree. LUBRIPLATE arrests progressive wear.

LUBRIPLATE
Lubricants protect machine parts against the destructive action of rust and corrosion. This feature alone puts LUBRIPLATE far out in front of conventional lubricants.

LUBRIPLATE
Lubricants are extremely economical for reason that they possess very long life and "stay-put" properties. A little LUBRIPLATE goes a long way.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NEWARK 5, N. J. TOLEDO 3, OHIO
DEALERS FROM COAST TO COAST
CONSULT YOUR CLASSIFIED TELEPHONE BOOK

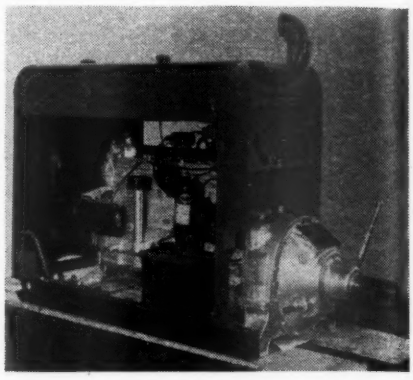

## ● Jaw Crushers

Jaw crushers developed by the Birdsboro Steel Foundry and Machine Company are of two types, B and C. Type C, a preliminary crusher, is designed to handle pieces of material as large as 66 inches in thickness. It is essentially the same in basic design as the first of its type, built in 1908 as the "first large all-steel sectional jaw breaker." Frames in all sizes of this type—of either box or panel design—are of open-hearth steel castings, with all joints machined to standard templates, so that any part can be accurately duplicated.

An open-hearth steel casting of box form constitutes the swing jaw. It is heat-treated and thoroughly annealed and has from 4 to 7 vertical interior ribs and 2 to 4 horizontal ribs. The face of this part is machined its entire length and provided with two vertical grooves to received the ground tongues on the manganese jaw plate—a feature which prevents side play of the plate and wear on the surface of the swing jaw.

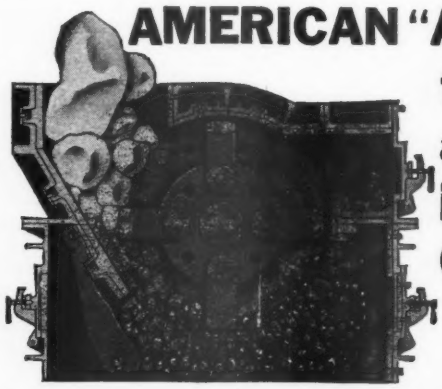
The pitman is of special Birdsboro alloy steel, heat-treated and designed to combine greater strength with lighter weight; and the eccentric shaft is of hammered steel, turned to standard gauges and polished in the bearings. Shaft diameter and bearing length are in excess of actual requirements, in order to secure a large bearing area upon which to float the load. Toggles, with few exceptions, are made of high-carbon open-hearth steel, accurately machined and fitted with the machine-ground seats of the manganese toggle bearings.

Removable vertical steel shims or liners are interposed between the machined back of the main toggle bearing and the machined surface of the rear head, for the purpose of regulating the size of the product.



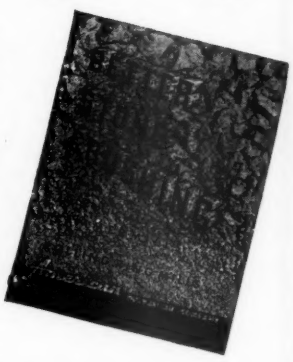
The 1947 model of the Chrysler Industrial 12 (8-cylinder, 323.5-cu. in. piston displacement) enclosed power unit. This model is equipped with a special industrial radiator, fuel tank, Twin Disc clutch and power take-off, battery, 6-volt electric equipment, full flow oil filter, sodium-cooled valves, Pierce mechanical governor and oil bath air cleaner. The Chrysler Corporation, Industrial and Marine Engine Division, 12200 E. Jefferson Ave., Detroit 31, Michigan.


AMERICAN "ACS" Hammermills for Compactness and Flexibility in Heavy-Duty Operation . . .



A—"Brute" for heavy reduction. B—"Broadhead" for medium reduction. C—"Splitter" for fine reduction.

Rapidly crushes any hardness of stone with uniform, individual size control. Assures a round or cubical product free of fingerstones and slivers. Conventional front feed produces a coarser finished product with reduced fines. Center-feed hopper receives stone to utilize upper crushing chamber for rapidity of impact and a finer finished product. Available with any of three types of hammers. Capacities up to 250 TPH.



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American PULVERIZER COMPANY
*Originators and Manufacturers of Ring Crushers and Pulverizers*
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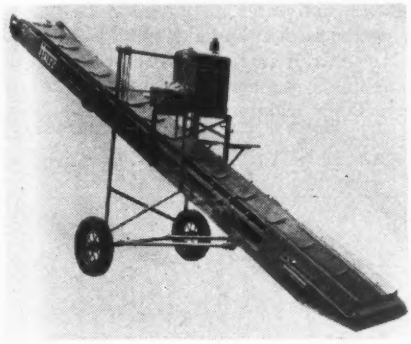
## ● Portable Belt Conveyor

This portable trough conveyor is designed especially for the handling of all loose materials such as sand, gravel, stone, cinders, etc., from hopper-bottom



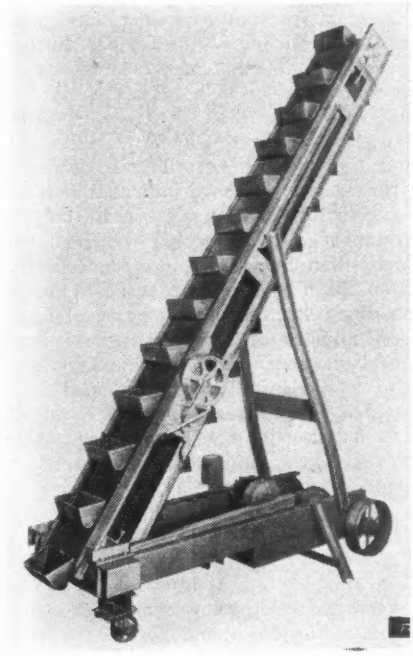
Trough conveyor for aggregates.

cars to trucks or storage piles or from storage piles to trucks and bins.

The unit is built in standard belt widths of 16 in., 20 in. and 24 in. and standard lengths from 20 ft. to 60 ft. in multiples of 5 ft. Fitted with an electric motor or a gasoline engine, the unit is mounted on steel or rubber-tired wheels. The capacity ranges from 60 to 180 m.p.h. The George Haiss Manufacturing Company, Division of Pettibone Mulliken Corp., 381 Canal Place, New York 51, New York.

## ● Belt Bucket Elevator

The Trowbridge Conveyor Company of Clifton, N. J., has announced a new portable belt bucket elevator for

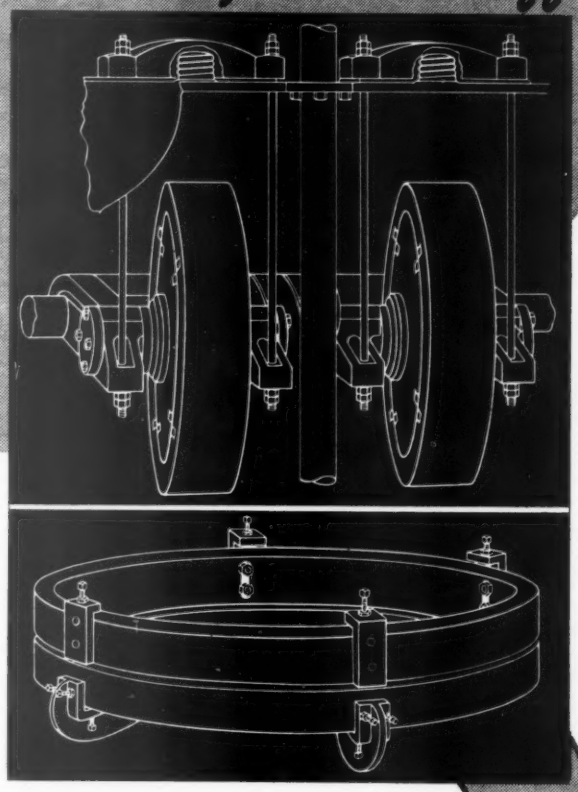


Portable bucket elevator.

handling loose material at a steep incline. The overall length of the conveyor frame is 12 ft. 11 in. It is equipped with a raising and lowering device.

The standard unit has a belt 10 in. wide, with buckets 10 in. wide and 5 in. high, spaced 12 in. apart. It is equipped with an electric motor drive and can be furnished with a belt speed of 100 f.p.m. to 250 f.p.m., as required.


# Key to Eagle Grinder Efficiency



● **Independent Muller Wheel Suspension**—mullers raise and lower separately; prevents tilting.

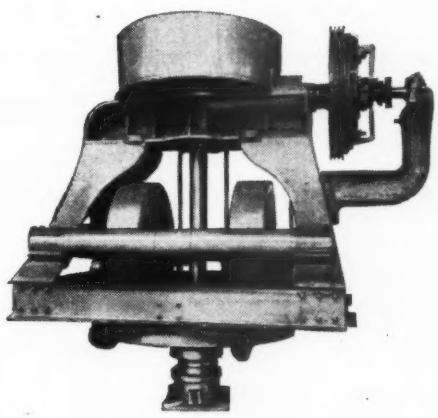
● **Adjustable Pan Rims**—make more or less tailings as desired; compensate for wear.

●

## For Concrete Blocks

Reduce cinders, slag, and haydite to precise specifications needed in manufacturing concrete blocks. The Eagle Grinder adjusts to pass the exact size material you want—no more too-fine pulverizing; no more too-coarse crushing. Uniformly-sized, rough-surfaced particles produced by the Eagle assure proper cohesion. Waste less material, reduce rejects, lower costs, increase production.

Pan floor revolves rapidly to throw material under mullers. After reduction to proper size, material is discharged by centrifugal force through adjustable opening between upper rim and pan floor. Independently suspended mullers spring-cushioned to prevent jarring, battering . . . can't tilt. Write for information today.



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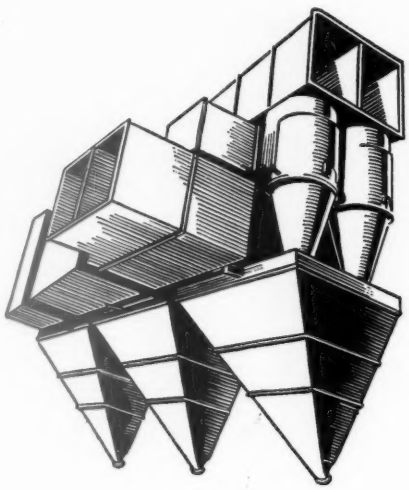
***Clay Working Equipment***

**SHALE PLANERS—GRINDERS—DRY PANS**
**WET PANS—CLAY CRUSHERS**

**EAGLE IRON WORKS**

**133 Holcomb Ave. • Des Moines, Iowa**

PRECISELY WHAT
IS YOUR
dust
recovery
PROBLEM?



You call a doctor

when you're sick—why not call upon engineering specialists to determine—and *solve*—your dust-collection problem? In the past 10 years, the Buell Engineering Company has designed and installed thousands of dust-collection systems, each planned to solve an individual problem. Each situation was different, because a broad range of industrial uses was covered. The engineering know-how behind Buell design successfully meets difficult conditions imposed by size and shape of available space, unusual dust compositions, and widely varied gas volumes. Furthermore, the Buell van Tongeren design eliminates plugging. It's all in the new 32-page catalog—write: Buell Engineering Co., 12 Cedar St., Suite 5000, New York 5, N. Y.

buell

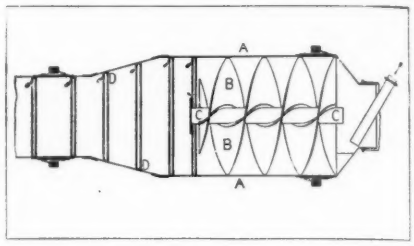
Engineered Efficiency in DUST RECOVERY

## ● Desiccator

Vickers - Armstrongs, Ltd., London, have produced the Vickers Desiccator, a device for reducing the consumption of oil or coal in rotary kilns.

A typical desiccator, such as the one shown, comprises an enlarged feed zone constructed of boiler-quality mild steel plates. It is integral with the kiln shell and has a number of quick-release access doors for examination and erection purposes.

A mild steel two-start spiral constructed




**Reduces fuel consumption.**

in sections for ease of handling is located in the enlarged zone to insure whirling of the gases. Each section has four segments of spiral welded to a central steel sleeve. All sections are mounted on a central steel tube, forming a double spiral. The entire construction of the spiral is so arranged as to accommodate any expansion which results from heating the gases.

The main feature of the Desiccator, apart from the two-start spiral, is the special arrangement of the heat exchange chains, which are hung in such a manner as to prevent "tangling" and promote self cleaning. A further feature is that the whirling of the gases caused by the spiral gives an effect similar to that of a cyclone and causes dust to be deposited on the wet blades of the spiral and the chains. According to Vickers-Armstrongs, tests have indicated that on some materials the gases contain only .8 grains of dust per cubic foot and not more than 3 cwt. of dust are collected from the hopper bottom every 24 hours, no dust-collecting devices being used.

A number of these units have been installed, some fitted to new kilns and also to old installations. In come cases as high as 40 percent increase in output was noted, with a corresponding saving of fuel consumption up to 25 percent of standard coal.

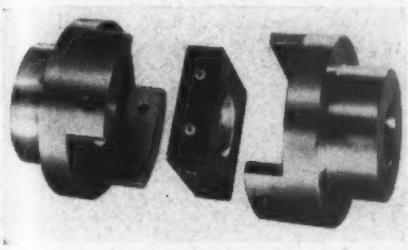
## ● Welding Electrode

A new electrode, "Hobart No. 111HT," is a shielded arc welding electrode designed for welding low-alloy, high-tensile steels in the downhand positions such as deep groove, positioned and horizontal fillet welds. The forceful spray type arc makes it unusually easy to handle and the spatter loss is very low, which results in a high rate of metal deposit. Slag is easily removed and cleaning time is reduced to a minimum. Physical properties are as follows: tensile strength, 70,000 to 80,000 lbs. p.s.i.; yield point, 65,000 to 70,000 lbs. p.s.i.; elongation, 25 to 30 percent. These electrodes are available in 3/16-in. and ¼-in. diameters only.

## ● Improved Coupling

A recent design improvement has increased the wearability of the American Flexible Coupling as much as 30 percent, according to an announcement made by the manufacturer.

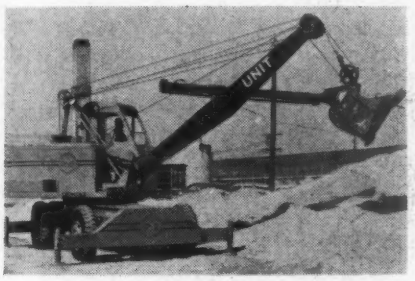
The only part that absorbs wear in these couplings is the center member or



Long-life coupling.

block which has a free sliding action between the two jaw flanges of the coupling. This center block has been improved so that the bearing strips now slide upon the center block to which they are secured, thus greatly reducing friction and consequent wear.

The purpose of the American coupling is to permit shafts to operate misaligned without transmitting reactionary stresses which may increase the bearing temperature and accelerate the rate of bearing wear in the prime mover or driven machine.




Highly adaptable mobile unit.

## ● Mobile Crane

A self-propelled mobile crane, the unit 357, mounted on six pneumatic-tired wheels, duals on rear axle and singles on steering axle, has been developed by the Unit Crane & Shovel Co. It is designed for operation on the highways, rough terrain, and in yard work where speed plus safety is a factor.

Convertible to all attachments are shovel, teachhoe, backfiller, clamshell, dragline and magnet. Crane capacity is 3 to 7 tons, ½-yd. capacity when used as a shovel, dragline, or clamshell. It is adaptable to a wide variety of jobs and travels under its own power.

The Unit has four-wheel air brakes, a two - speed air - actuated transmission, smooth operating disc clutches and a hydraulic steering mechanism. Outriggers are provided for special lifts. It is powered by an 8-cylinder heavy-duty industrial gasoline engine, rated at 67 hp. at 1550 r.p.m. It has a traveling speed (accomplished through the 2-speed air-operated transmission) of 10½ m.p.h. at 2550 r.p.m. engine speed. It is equipped with an electric starter, oil wash cleaner, battery ignition, and a 40-gal. fuel tank.

**Get ready for Spring production with a SECO!...Is your order in?**

The picture above shows the flow of Seco Vibrating Screens to producers for Spring production. Since moving into our new factory, we've tripled production. Now, we are making prompt deliveries on single, double, triple, three and one-half deck Seco models. No more long waits.

Get set for Spring! You'll want the advantages of Seco's fully controlled true circular action on your screening job. Thousands of operators on all types of screening jobs attest to Seco's ability to deliver greater tonnages, to give smoother performance and longer service.

OVER 250 MODELS!—There's a right Seco for screening every type of material from sand to rip rap. Write, wire (Dept. L) or phone your requirements today for prompt delivery. Our Buffalo phone number is Taylor 0455.

Write for A Guide to Better Screening

SECO

SCREEN EQUIPMENT COMPANY, INC.
PRODUCERS OF VIBRATING SCREENS EXCLUSIVELY
Buffalo 21, New York
In Canada: United Steel Corp., Ltd., Toronto

# A DEISTER SCREEN

## 150,000 Tons Without a Cloth Change

150,000 tons of material sized without a screen change . . . that's the record of a Deister 5' x 12' triple-deck PLAT-O Vibrating Screen that helped increase plant production 400 percent during its first season of operation. Since then, this PLAT-O has required no service other than screen cloth changes and easy day-to-day maintenance.

Installed in 1946 at the Kickapoo Sand and Gravel Company Plant, Peru, Indiana, this PLAT-O Screen has averaged 300 tons per hour . . . 270 tons of virgin feed, plus 30 tons of circulating load. It's daily production represents the material supplied by 20 railroad cars.

The rugged design and construction of PLAT-O Vibrating Screens assure minimum maintenance and high capacity throughout long service life. Proved dependability, faster grading, and more accurate sizing have made PLAT-Os tops with operators the world over. Write for Bulletin 27—"Better Sizing Cheaper".

PLAT-O

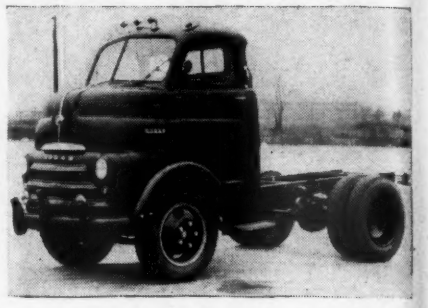
DEISTER SCREENS

DEISTER MACHINE COMPANY • Ft. Wayne 4, Ind.

### ● New Truck Line

A completely new line of Dodge job-rated trucks comprising 248 basic chassis models ranging from 4250 to 23,000 pounds gross vehicle weight and up to 40,000 pounds gross train weight has been announced by L. F. Van Nortwick, director of truck sales of the Dodge Division, Chrysler Corporation.

Front axles have been moved back and engines have been moved forward to

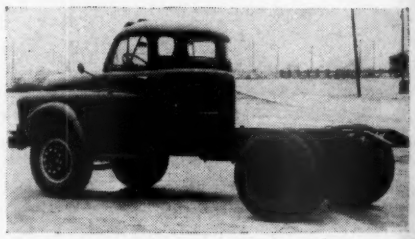


Front axles moved back.

place more of the gross vehicle weight on the front axle for better weight distribution. The wheelbase for conventional models through the 2-ton has been reduced 8 inches, while the 2½ and 3-ton models have been reduced 6 inches.

New ease of handling and driving has been provided by the shorter wheelbases and wider tread front axle, together with cross steering, which is a new feature on all conventional cab models. Cross steering permits a 37-degree turning angle both right and left.

Comfort in any season or weather is provided by an all-weather heating and



Cab has 360-degree vision.

ventilating system which is a combination of truck heater, defroster vents, vent windows, cowl ventilator, and a fresh air intake.

De luxe and custom cabs have what is termed "360-degree vision" through increased glass area and installation of rear quarter windows. Windshields and windows of the new cabs are higher and wider. Drivers can enter or leave the conventional cab easily from either side since the gear shift and emergency brake levers have been moved forward to give clear floor space from door to door.

Conventional models can be road serviced from the left side as the fuel tank, oil filler, radiator filler, and battery are so located.

Braking systems are larger and improved. Front and rear axles have increased load-carrying capacity. Front springs are longer. Radiator cores have been redesigned to facilitate better cooling.

# trade notes

The St. Regis Paper Company announces the appointment of Arch Carswell to the newly established position

Arch Carswell

H. W. Sloan

of general sales manager of the company's Multiwall Bag Division.

Mr. Carswell, who joined the company in 1928, assumed his new duties on January 12 and will make his headquarters at the New York office.

H. W. Sloan, previously assistant Pacific Coast manager, succeeds Mr. Carswell as Pacific Coast manager of the Multiwall Bag Division.

R. G. LeTourneau, Inc., has created a wire rope sales department as a part of the corporation sales division. With the advent of the new department, LeTourneau will incorporate a full lines of

• W. H. Wilson, M. R. Kahle and A. J. Becker.

sizes, types and construction of preformed and non-preformed wire rope under the trade name "Tournarope."

In charge of the new department is W. H. Wilson, wire rope sales manager. Mr. Wilson will be assisted by M. R. Kahle and A. J. Becker, sales engineers.

The Lima Shovel and Crane Division of Lima-Hamilton Corporation, Lima, Ohio, announces the appointment of Thompson Sage, Incorporated, located at 400 South Wilson Way, Stockton, California, as authorized agents for the complete lines of Lima shovels, cranes and draglines in the territory surrounding Stockton, California.

Luke E. Smith, president of the "Quick-Way" Truck Shovel Co., Denver, Colorado, announces that plans are now complete for the construction of a new building, to cost approximately $100,000.00, to house additional manufacturing facilities at the site of their present plant.

Harvey W. Clements, for 18 years manager of the Chicago general sales office, Bemis Bro. Bag Co., was the honor guest at a dinner held recently at the anniversary with the company.

Bradford Foote Sr., 75 years of age, a pioneer in gear manufacturing, died on November 19 in Chicago. Mr. Foote was president of the Brad Foote Gear Works, which he founded in 1924. Previously he had conducted a business, the Foote Bros. Gear and Manufacturing Co.

*Follow the trend to*

**LONG-HAUL CONVEYING AT LOW COST WITH**

**CINCINNATI BELTS**

Today wisely operated aggregate plants are reducing conveying cost . . . increasing production through the long-haul efficiency and economy of Cincinnati Conveyor Belts. Many plants are placing primary crusher right in the quarry and reducing handling cost through the BIG tonnage carrying power of Cincinnati Belts. Let a Cincinnati man give you full details. Write or wire today.

**THE CINCINNATI RUBBER MANUFACTURING CO.**
**CINCINNATI 12, OHIO**

This Cincinnati Conveyor Belt conveys entire out-put of an eastern plant. Primary crusher located in quarry. Material conveyed over 1000 ft. to secondary crusher.

# Here are Hooks that hoist your Profits!

**Clevis Hoist Hook Is Quickly Attached . . . Changed . . . Saves Time and Labor.** Slip the bolt through the clevis, spin the nut, spread the cotter and this heat-treated hook's ready and safe for your toughest jobs. No welding, no spelter, no connecting fittings required. Send for Laughlin's famous data book of industrial fittings... Catalog No. 140.

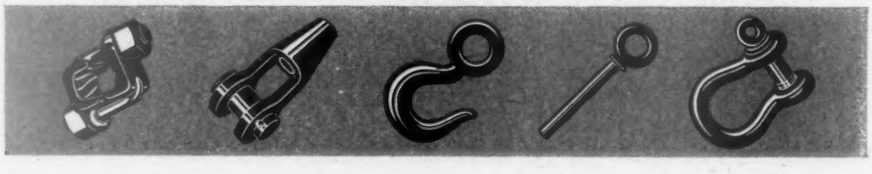
THE THOMAS LAUGHLIN CO.,
DEPT. 3, PORTLAND 6, MAINE.

Laughlin Safety Hook . . . "The Latch Locks The Load" . . . adds a big safety factor to every lift. Sturdy latch, stainless steel spring. For every industrial application.

Laughlin Replacement Swivel Hook Assembly with Safety Latch. Bolts on and off . . . no machining . . . no threading. For hoists, cranes, lashing operations. One-ton and half-ton sizes.

**LAUGHLIN**

THE MOST COMPLETE LINE OF DROP-FORGED WIRE ROPE AND CHAIN FITTINGS



W. E. Madden

E. J. Seifert, president of Pettibone Mulliken Corporation of Chicago, has announced the appointment of W. E. Madden as sales and division manager of the Conveyor Division of their wholly-owned subsidiary, the George Haiss Manufacturing Company of New York City.

Mr. Madden has been associated with the conveyor industry in a sales management capacity for thhe last 20 years.

The Blaw-Knox Company has announced the appointment of Cornelius L. Sarosdy as sales engineer for construction equipment in the area covering Texas, Oklahoma and New Mexico. He will have his headquarters in Dallas.

Robert Maynard

Robert Maynard, export sales manager of The Osgood Company, and The General Excavator Company of Marion, Ohio, returned recently from a tour of the principal markets of Central and South America and the West Indies.

Mr. Maynard was engaged in making a survey of the market for earth-moving and materials-handling equipment, the establishment of distributorships, and contacting owners of Osgood and General power shovels and materials handling equipment.

Hooper Engineering Co., Skaneateles, New York, has been appointed by Barber-Greene Company, Aurora, Illinois, as exclusive distributor in central New York, representing the Barber-Greene Construction and Industrial Divisions. Products being handled are bituminous mixing and paving machines, portable bulk material loaders, ditchers, portable and permanent belt conveyors, crushers, and coal handling equipment for retail and industrial applications.

Samuel Shane, formerly with the *Wall Street Journal*, has joined the St. Regis Paper Company, New York City. He will be engaged in public relations work in behalf of the St. Regis Paper Company, St. Regis Sales Corporation and St. Regis Paper Company (Canada) Ltd.

In the interest of centering manufacturing facilities on its principal lines, Gardner-Denver Company has sold its governor business to the Wiebmer Machine Shop at Quincy, Ill. Gardner-Denver will henceforth concentrate on its expanding business in rock drills, air compressors, pumps and other allied products.

Construction of new factory-to-house facilities for the manufacture of diesel wheel-type tractors and diesel motor graders and for the final assembly of scrapers, wagons and rippers has been initiated by Caterpillar Tractor Co., Peoria 8, Illinois.

The Pettibone Mulliken Corporation of Chicago, Illinois, received the 1947 "Oscar of Industry" award for what was finally adjudged by the Independent Board of Judges in the Financial World Annual Report Survey the best 1946 annual report in the rail equipment industry.

General Electric's Apparatus Department, largest and oldest manufacturing division of the company, is establishing a new "integrated operating unit form of management to provide for expanded production," it was announced by R. C. Muir, vice-president and general manager of the department.

The Apparatus Department, which is responsible for General Electric's capital goods business, is a manufacturer of power-producing and power-consuming equipment for industry, utilities and transportation.

Bemis Bro. Bag Co. was one of 40 Midwestern companies honored last month by the award of "Certificate of Public Service" given to familiar American trade names. Presentation ceremonies, in which 60-brand names were so recognized, were held at the Sheraton Coronado Hotel, St. Louis.

Completion of a new $450,000 multiwall paper bag plant at Vancouver, B. C., by the St. Regis Paper Company (Canada) Ltd., marks another milestone in the organization's long-range plan for plant expansion and modernization. The new plant has an annual capacity three times that of the former Vancouver plant.

Organization of a fifth region for the field organization of the Allis-Chalmers General Machinery Division under Arch J. Cooper, New York district office manager, has been announced by J. L. Singleton, vice-president and director of sales.

The new area, designated as the Empire region, will embrace territory formerly covered by New York City, Buffalo, Rochester, Syracuse and Newark offices.

Appointment of the Industrial Supply Company of Minneapolis, Minn., as a distributor of the entire Hewitt Rubber Division's line of industrial hose, belting and packing, was announced here today by J. H. Hayden, vice-president in charge of sales, Hewitt-Robins Inc.

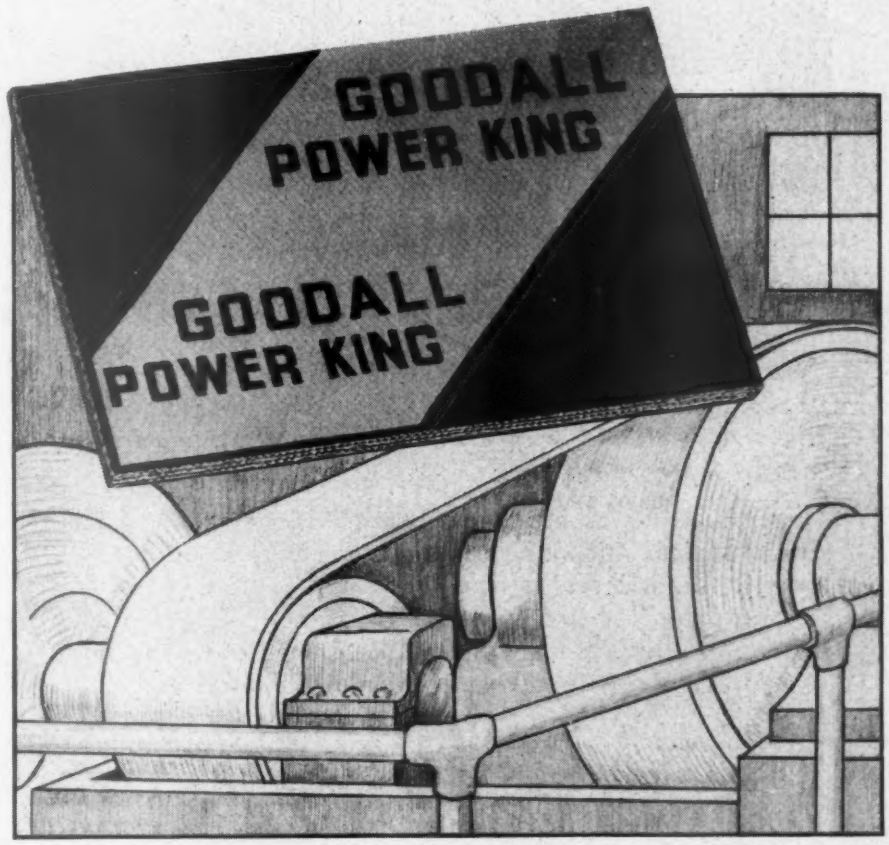
Appointment of Fly & Harwood, Inc., Memphis, Tenn., as distributors of Davey Compressors, was announced recently by Paul H. Davey, president, Davey Compressor Co.

W. H. Hammond

Stepping up the tempo of its sales and manufacturing, Gar Wood Industries, Inc., with executive offices at Wayne, Michigan, has integrated its organization to meet the continuing heavy demand for construction equipment.

W. H. Hammond, vice-president of sales for Gar Wood, announces the appointment of E. B. Hill as general sales manager and R. F. Whitworth, general service manager and the creation of four domestic regional sales offices under Mr. Hill. Promoted to regional managers are Ross Miller, San Francisco (Western Region), A. C. Berg, Wayne, Michigan (Central Region), W. G. Barrett, Boston (Northeast Region), and H. C. Hatch, Washington, D. C. (Southeast Region).

J. D. Towne has been appointed division manager and W. S. Blakeslee was promoted to sales manager of the Wayne Division. Promotions to district manager were also announced for H. N. Nelson, B. A. Cooper, E. R. Curry, W. D. Kerrick, R. J. Palmer, R. M. Steegman, D. C. Royce and W. R. Karll.


"POWER KING" TRANSMISSION BELTING

Made of *pre-war quality natural rubber* to give it the extra strength, grip and long life that guarantees *steady power* to your primary or intermediate crushers. Friction surface, raw edge construction. Assures minimum stretch and firm contact with pulleys at high speeds. Plies of specially built duck provide exceptional longitudinal strength. High quality friction between plies contains rich skims of rubber for greater flexibility and to eliminate "bootlegging." Edges treated to keep out moisture. Available in all widths up to 48", in 33- and 35-oz. duck. Can be made endless if desired.

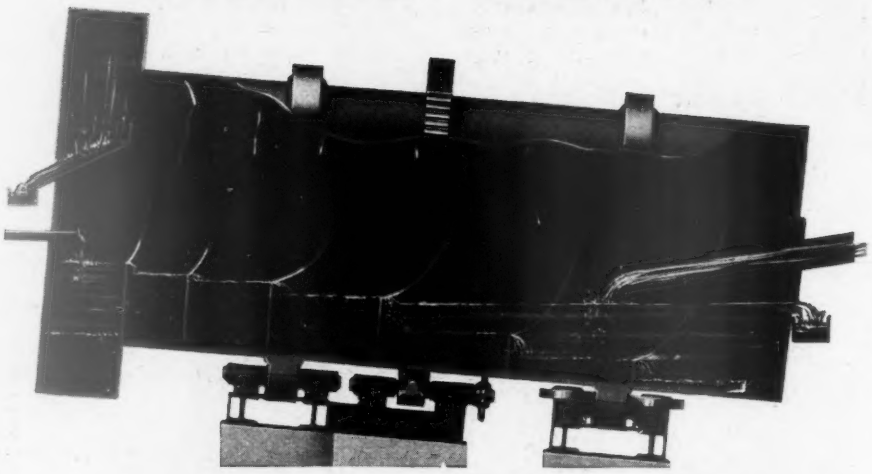
*Contact Our Nearest Branch for Further Details and Prices.*

GOODALL RUBBER CO., INC.

THE GOODALL-WHITEHEAD COMPANIES

Philadelphia • Trenton • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Houston • Factory: Trenton, N. J. • Est. 1870

# Better Separation — Cleaner Sands



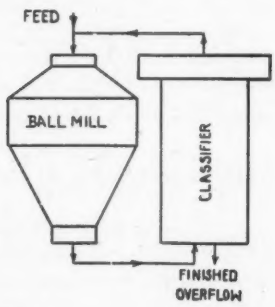
## . . . with HARDINGE COUNTER-CURRENT CLASSIFIERS

The unique "spiral squeeze" action of the Hardinge Counter-Current Classifier literally wrings the fines from the sands — producing a cleaner, more uniform oversize, nearly dry if desired.

The mixture to be separated is fed into the lower end of the classifier, which is inclined to the horizontal and rotates slowly. The coarser particles settle out and are picked up by the classifier spirals, agitated, washed, squeezed and discharged by lifting flights at the higher end. The fines are discharged with the wash water at the lower end.

### MILL AND CLASSIFIER IN CLOSED CIRCUIT

Highly efficient when used in closed circuit wet grinding with a mill (see diagram), this classifier returns the oversize to the mill for further grinding and discharges a product as fine as — 200 mesh, if desired.




Write for Bulletin 39-A.

# HARDINGE
COMPANY INCORPORATED

YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 11—24 California St. • 200 Bay St.—TORONTO 1

Judson Bemis, manager of Bemis Bro. Bag Co., Minneapolis, has announced the purchase of a 15-acre site in Hopkins, a suburb of Minneapolis, for the construction of additional plant facilities. The new plant will be managed by W. J. Geimer.

Yale & Towne Manufacturing Company, Philadelphia Division, has initiated a complete materials-handling technical and sales service in New York City in its own building at 205 E. 43rd Street.

Fairbanks, Morse & Co., Chicago, announce the following changes in their sales organization.

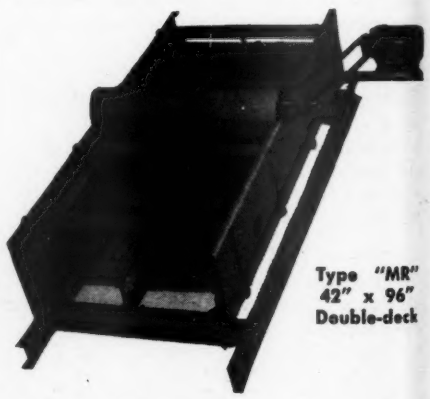
J. C. Elmburg, manager of the company's Boston branch house, has been transferred to the company's Atlanta, Georgia, branch house to assume the position of manager of that area. He replaces G. N. Van Epps, who recently resigned.

V. O. Harkness, who has been manager of the Diesel Division at Chicago headquarters, has been appointed manager of the Boston branch and T. M. Robie of Chicago has been appointed to the position of manager of the General Diesel Sales Division.

The International Paper Products Division of International Paper Company has opened a branch sales office in New Orleans, with H. Currie as district sales manager. The office is located at 502 Hibernia Bank Building, New Orleans.


# WHY GAMBLE WITH RESULTS?

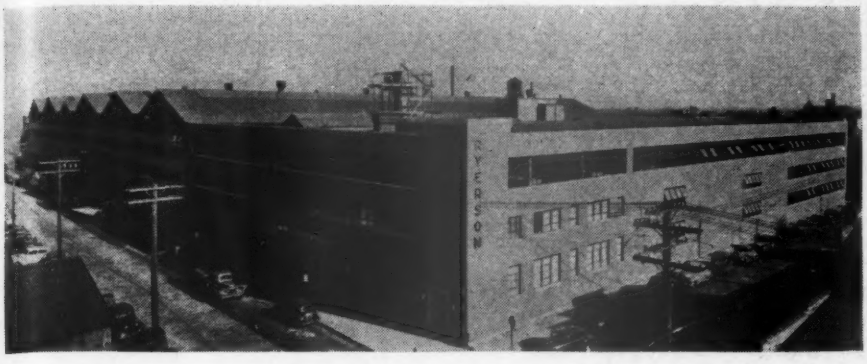
Take the hit-or-miss out of Screening with a UNIVERSAL! Every part of this machine has been designed to give the operator less expense and more productive efficiency.



Type "MR" 42" x 96" Double-deck

Write today for catalog No. 107, and discover why hundreds of operators have profited by screening the UNIVERSAL way!

UNIVERSAL VIBRATING SCREEN CO.
RACINE - - WISCONSIN



• This recently completed addition to the Cleveland steel-service plant of Joseph T. Ryerson & Son, Inc., makes the plant the largest of its kind in the Cleveland area.

Clarence A. Kimble, manager of the Dayton branch of the Carroll-Edwards & Co. has recently been appointed secretary of the firm.

In addition to Mr. Kimble's new duties, he will retain the managership of the Dayton office. Due to Mr. Kimble's long experience and background in the operation and maintenance of equipment for aggregate products, he will specialize in the entire southern Ohio territory in pit and quarry equipment.

P. S. Gough

Promotion of Percy S. Gough to manager of the Distributor Sales Division of American Hoist and Derrick Company has been announced.

Products covered by the Distributor Sales Division include American Hoist derricks, hoists, material elevators, tractor winches, dredge hoists, sugar cane handling machinery, and a number of specialties.

About 175 attended the annual sales conference of the Industrial Truck Division of the Hyster Company in Danville, Ill., on January 8, 9 and 10. Among the export group were Wellington Koo Jr. of the Wien Yuen Industrial Corp., China; J. A. Bon of Geveke & Co., Netherlands; and I. R. Benoliel & Cia., Brazil.

A trip through the Danville plant of the company was made under the direction of Dan Sheehan, local manager for Hyster.

Gordon Lefebvre, president of the Cooper-Bessemer Corporation, was elected the president of the Diesel Engine Manufacturers Association at the recent annual meeting of that group. Elected to serve with Mr. Lefebvre and Otto Fischer for one year on the board of directors were the following: C. S. Herbert, executive vice-president of the Enterprise Engine & Foundry Co.; W. E. Corrigan, vice-president of the American Locomotive Company; Robert E. Friend, president of the Nordberg Manufacturing Company.

The annual meeting, held in conjunction with the D.E.M.A. engineers' session, has been described as the most important and the most successful in the history of the organization. E. J. Schwanhausser, retiring president, announced that during 1948 the association would publish two books: *Marine Diesel Standard Practices* and a Spanish edition of *Standard Practices for Stationary Diesel Engines.*

Link-Belt Company announces that Columbus Basile has been appointed superintendent of the company's Caldwell plant at 2410 West 18th St., Chicago.

Smooth, effortless steering—without stopping the forward motion of the machine—with the cab in any position—that's OSGOOD Air-Controlled Steering! Independent air cylinders, actuated by a small lever in the cab, disengage and set steering brakes on the driving sprockets instantly, eliminating the need to hunt for a point where a steering lock can be engaged.

OSGOOD Air Control means faster, safer operation . . more work done in less time, with less effort. Plan now to choose an OSGOOD . . a complete line of power shovels, draglines, cranes, clamshells, backhoes and pile drivers . . a model for every type of work.

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

THE OSGOOD CO. O-G THE GENERAL CO. EXCAVATOR

MARION OHIO

DIESEL, GASOLINE OR ELECTRIC POWERED • ⅜ TO 2½ CU. YD. • CRAWLERS & MOBILCRANES

Capitol Equipment, Inc., Troy, New York, has been appointed by Barber-Greene Company, manufacturer of material handling equipment, Aurora, Illinois, as exclusive distributor in the Albany and Mohawk Valley Territory, representing the Barber-Greene Construction and Industrial Divisions.

Barber-Greene products being handled by the firm include bituminous mixing and paving machines, portable bulk material loaders, ditchers, portable and permanent belt conveyors, crushers, and coal handling equipment for retail and industrial applications.

Elbert Eugene Hickok, known to a wide circle of friends and acquaintances as "Gene," was killed in a hit and run accident in Denver, Colo., where he had been living since 1942.

Mr. Hickok was born in Missouri 72 years ago. For more than 40 years he had been associated with the A. Leschen & Sons Rope Company of St. Louis.

Howard F. Parkerton Sr., manager of the Farrel - Birmingham Company, Inc., sales office at Los Angeles, died recently after an operation. He was 62 years.

Mr. Parkerton first came to the Farrel firm at Ansonia in 1901 to serve his apprenticeship as a machinist. In 1920 he was employed at the company's Buffalo plant, and in 1930 was placed in charge of the newly established Farrel-Birmingham sales office in Los Angeles, which remained under his management until his death.

K. F. Ames

Kenneth F. Ames, general sales department member, and Russell S. Cornell and Truman E. Sage, district sales representatives of Caterpillar Tractor Co., have been named assistant sales managers of the Central, Eastern and Western Sales Divisions, respectively, according to an announcement by Henry H. Howard, general sales manager of "Caterpillar."

The appointments expand the organization of the general sales department

T. E. Sage

R. S. Cornell

to include two assistant sales managers in each of the geographical sales divisions. Mr. Ames and Mr. Cornell will make their headquarters at the Peoria plant and Mr. Sage will serve at the San Leandro, Calif., plant.

The Foxboro Company Limited recently moved into its spacious new building in the Ville LaSalle section of Montreal, Que., Canada. The Foxboro Company Limited manufactures virtually the entire line of Foxboro instruments of measurement and control. John H. Bolton, manager, continues in charge.

Arthur P. Van Gelder, one of the most widely known figures in the American explosives industry, died recently at Wilmington, Del. When he retired from active service in the explosives industry in 1921, Mr. Van Gelder was general superintendent of high explosives of the Hercules Powder Company.

Marion Power Shovel Co., Marion, O., announced the lease of the former Firestone rim plant in Cambridge, O., from The Community Industrial Association, an organization of Cambridge business men and firms. The contract carries the right to purchase outright at a later date. This plant was declared surplus by the War Assets Administration, from which the Cambridge civic group purchased the property.

Peter Groustra, formerly district sales engineer at Detroit, has been appointed district sales manager in charge of Link-Belt's new sales office in Grand Rapids, Mich., at 406-7 Murray Building.

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• Increase your profits and stop tonnage losses with the specially prepared, reinforced screen sections for vibrators. This standard type of edge is available in five different styles for electrical and mechanical vibrating machines.

Let our wire screen specialist show you how you can adapt these screen section assemblies to increase your profits.

**There is a CLEVELAND Wire Screen for every purpose.**

- NO PULL-OUT
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- EXTRA STRENGTH
- EASY TO CHANGE
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THE CLEVELAND WIRE CLOTH & MFG. CO.
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delivers any bulk material at a preset rate per hour. It automatically weighs, totals and records the amount of material fed. It also correctly proportions two or more materials in batch or continuous proportioning.

**MERRICK SCALE MFG. CO.**
188 Autumn Street Passaic, New Jersey

Le Roi Company announces that C. W. Pendock has resigned as its president and E. A. Longenecker, who has been president of the Lauson Division of Hart-Carter Company, has been elected as his successor by the board of directors. Mr. Pendock was elected to the position of chairman of the board.

E. A. Longenecker

C. W. Pendock

Mr. Pendock has been the only president in the company's history. He sparked its growth from a small machine tool shop in 1914 to one of the industry's leading manufacturers.

American Brake Shoe Company's two new non-ferrous foundries recently completed at Niles, O., and Meadville, Pa., were opened during December.

The new Meadville plant, replacing an older plant of the National Bearing Division formerly located there, will produce bronze bearings and castings. The Niles which will manufacture railroad journal bearings, is strategically located in the heart of a three-state railway supply area which includes many car manufacturing plants.

Appointment of the Industrial Equipment Company of Louisville, Ky., as a distributor of the entire Hewitt Rubber Division's line of industrial hose, belting and packing, was announced here today by J. H. Hayden, vice-president in charge of sales, Hewitt-Robins Inc. The Industrial Equipment Company will serve all industries with the Hewitt line within a 45-mile radius of Louisville.

In connection with Gar Wood's expanding sales program, announcement has been made by Charles W. Perelle, president of Gar Wood Industries, Inc., Wayne, Michigan, of the appointment of Walter C. Robertson as vice-president —export, handling all products of the three divisions of the company.

John H. Hinman, president of International Paper Company, announced today the formation of the company's Bagpak Division, to carry on all its operations involving manufacture and sale of heavy-duty multi-wall kraft paper bags. Previously these operations were handled by two subsidiary companies, George and Sherrard Paper Company and Bagpak, Inc., which have been dissolved, and by the company's former International Paper Products Division.

Schloss & Shubart, an engineering and sales organization in Denver, Colo., has moved from the Boston Bldg. to 1626 Wazee Street. The firm has been appointed stock-carrying distributors, in addition to continuing as Link-Belt sales representatives.

The appointment of H. A. Pratt as parts and service manager of the Davey Compressor Co., Kent, Ohio, was announced recently by Paul H. Davey, president. A veteran of over 20 years of company service, Mr. Pratt was formerly superintendent of the Kent, Ohio plant.

The appointment of Charles L. Edwards to the position of chief engineer is announced by Nagle Pumps, Chicago Heights, Illinois, manufacturers of industrial pumps for abrasive and corrosive applications.

Mr. Edwards was previously with the pump engineering department of the American Manganese Steel Division of American Brake Shoe Company.

C. L. Edwards


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Poidometers weigh, feed, blend, mix, and proportion raw and finished materials, performing this complete job accurately and automatically.

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# legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

## New Higher Court Law Suits

A few days ago I received an interesting letter from a reader who said: "In our state disabled employees can get payment of Workmen's Compensation only for accidental injuries. Does this mean that an employee having a sickness caused by his work can't get compensation? How about silicosis? I need your help, as I think I have it."

A majority of courts very consistently hold that silicosis and other diseases caused by breathing dust are compensable as accidents.

For example, in *Batesville White Lime Company v. Bell,* 205 S. W. (2d) 31, reported January, 1948, the testimony showed facts, as follows: An employee had been working for the Batesville White Lime Company for 23 years and was forced to quit work on account of a total and permanent physical disability. Much of the time his duties kept him around a rock crusher, where the air was heavily impregnated with dust. A report of the Division of Industrial Hygiene of the Arkansas State Board of Health made July 30, 1945, showed that employees at this plant were working in an excessive amount of dust and in this report certain changes necessary to ameliorate unhealthful conditions at the lime quarry were recommended.

The higher court awarded compensation to the employee, under a state law which restricted payment of compensation for accidents. This court said:

"It is not seriously contended that the finding of the medical board that inhalation of dust by appellee during his work had aggravated the diseased condition of his heart and caused his disability was not responsive to the evidence."

Also, see the case of *McNeely v. Carolina Asbestos Company,* 206 N. C. 568. This court held that pulmonary asbestosis produced by the employee's inhalation of asbestos dust over a period of five months was an "injury by accident" and compensable under the State Workmen's Compensation Act. The court in that case said:

"Unless we attempt to whittle down or enlarge words the expression 'injury by accident' in its common-sense everyday conception is referring to an injury produced without the design or expectation of the workman."

And again see *Carroll v. Industrial Commission of Colorado,* 69 Colo. 473, 195 P. 1097, 19 A.L.R. 107. This court held that where the dust-laden condition of the air in which an employee was working brought on a heart attack culminating in death and that the result was "an accident" within the meaning of the Workmen's Compensation Act.

Likewise, where a latent tubercular condition was *revived* by an employee inhaling dust during the period of employment, the disability was held by the Idaho Supreme Court, in the case of *Beaver v. Morrison-Knudsen Company,* 55 Idaho 275, 41 P. (2d) 605, 97 A.L.R. 1399, to be an accident within the meaning of the term as used in the Workman's Compensation Act. In this case the employee could not specify the exact time when the injury was received.

And in *Murch-Harvis Company v. Townsend,* 209 Ark. 956, 193 S. W. (2d) 310, an employee was disabled by the *aggravation* of a bronchial asthma by dust inhaled by him in his working place.

YOU CAN TAKE IT WITH YOU
... a Portable Crusher

MUCH EASIER TO MOVE THIS CRUSHER TO THE MATERIAL

Illustration shows continuous bucket elevator in operating position. It folds to horizontal for traveling. Made in three sizes, 10-16, 10-20 and 10-36. Built to EAGLE'S rigid, field tested specifications by the pioneer in one-piece electrically welded steel crusher frames.

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Hundreds of Installations . . Use Bradley Pulverizers
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Cement Materials and all Dry, Non-Metallic Minerals
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ALLENTOWN, PENNA.

The court held that his disability was the result of an *accidental injury.*

### Fair Labor Standards Act

A new higher court decision holds that companies which do not solicit business to customers outside the state need not pay wages specified by the Fair Labor Standards Act.

For example, in *Wiley v. Stewart Sand and Material Company,* 206 S. W. (2d) 362, reported January, 1948, certain employees sued the Stewart Sand and Mal terial Company, located in Missouri, for overtime compensation, liquidated damages, and attorneys' fees, under the Fair Labor Standards Act.

During the trial the employees proved that the crushed rock which they produced was sold to contractors who used it in the construction of highways, and also sold to the Missouri, Pacific Railroad Company, which used it for the repair and maintenance of its roadbed, all done in the state of Missouri. Also, some of the crushed stone produced by them was sold and delivered to customers in the state of Kansas. The employees who filed the suit were powderman's helpers or drillers at the rock mine.

The higher court refused to award these powderman's helpers or drillers a favorable verdict, stating that they were not "engaged in commerce" or in the "production of goods for commerce" within the Fair Labor Standards Act, although some rock produced went outside the state. Actually the testimony showed that only about one-eighth of one per cent of the plant's total production went into interstate shipment and the plant did not solicit out-of-state business.

For comparison see *Walton v. Southern Package Corp.* 320 U. S. 540. Here the Supreme Court of the United States held that porters, elevator operators, watchmen, etc., bear such a close and immediate tie with the process of the production of goods for commerce that they must be paid wages specified by the Fair Labor Standards Act, if they work in a building in which manufactured goods is sold and shipped in interstate commerce.

### Delayed Too Long

In a suit for overtime wages based on the Fair Labor Standards Act, the employee cannot receive a favorable verdict if he delayed filing the suit beyond the limit stated in the law of the state where the employe worked.

In *Hollingsworth v. Service Company,* 199 S. W. (2d) 266, a Texas state law provides that suits are void if not filed within two years "after the cause accrues."

An employee sued his employer for overtime wages amounting to $2,763, under the Fair Labor Standards Act. The higher court refused to allow the claim because the employee had earned the overtime wages more than two years before the suit was filed. This is an unusual decision since generally a state law cannot affect federal statutes.

### Peculiar Financial Tangle

Considerable discussion has arisen from time to time over the legal question: If


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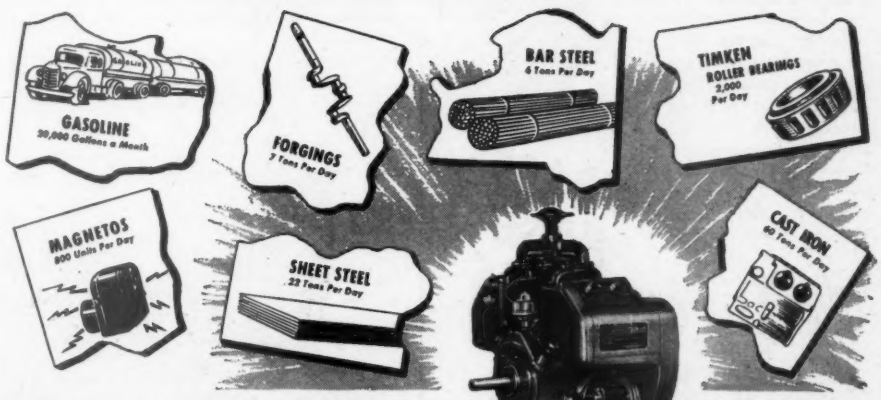


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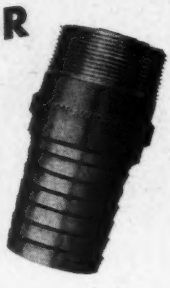

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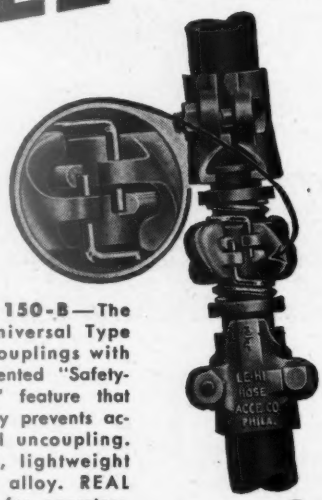

Series 150-B—The only Universal Type Hose Couplings with the patented "Safety-Locking" feature that positively prevents accidental uncoupling. Rugged, lightweight bronze alloy. REAL SAFETY for operators. Interchanges and locks with other standard couplings. Hose sizes ½", ¾" and 1".

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Series 800—Brass Suction or Water Discharge Hose Coupling—Pin Lug Type. For hose sizes from 1¼" to 6" I.P.T. Also made in Garden or Heavy Duty Water Hose sizes ½" to 1" with hexagon or octagon swivel nut.

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**Philadelphia 32, Pennsylvania**


a contractor does work for a city under an illegal contract can he recover payment? The answer is yes if payment does not cause injury or financial loss to innocent parties.

For illustration, in *Hayward v. City of Corpus Christi,* 195 S. W. (2d) 995, the testimony showed facts, as follows: A state law provides that no municipal water system shall ever be sold or encumbered for more than $50,000.

A city entered into a written contract with a contractor who agreed to furnish $310,000 for the purchase of lands, and furnish all the labor and materials necessary to erect a dam, reservoir and elevated tank, to be operated by the city as a part of its water works plant. The city agreed to reimburse the contractor for the money so furnished with revenues to be derived from the operation of the water system. The city issued water revenue bonds which were secured by a deed of trust executed in legal form covring all of the city's water system.

Later the city challenged the validity of the contract, bonds and trust indentures upon the ground that their issuance and execution had not been authorized by a majority vote of its qualified voters as required by a state law.

The higher court held that the bonds and trust indentures are invalid.

Notwithstanding this decision this higher court also held that since the contract between the city and the contractor was merely invalid, and not fraudulent, the contractor could take ownership of the lands and water works improvements thereon. This court said:

"The contract was entered into in good faith by the contracting parties for useful purposes. It was completely performed by the contractor to the satisfaction of the city."

Then the question arose: Since the waterworks properties and improvements are necessary to the city to supply water to its citizens, how can the city obtain possession of these properties and improvements? This court held that the city must pay the contractor the value of the properties and improvements, and that the bondholders then could acquire all rights of the contractor. Hence in the end neither the bondholders nor the contractor suffered financial losses, and the city had acquired a new water system in violation of the state laws.

### Gasoline Tax

You can't avoid paying a state's gasoline tax for road improvements.

In *Farmers Exchange v. Director of Revenue,* 181 Pac. (2d) 541, a state's law was held valid which levied a tax of 1 cent per gallon on gasoline for construction of a system of roads to be known as "secondary" road system.


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Sprague & Henwood Core Drilling Machines are modern in every respect . . . can EASILY perform the work expected of them! That's because they are built to meet the demands of present day core drilling work! The machines are high speed, of exceptionally sturdy construction to withstand rugged service. Available with two distinct types of feeds, "Screwfeed" and "Hydraulic," according to the type of swivel head selected. Have many exclusive features. Write today for full details.

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# traffic news

## CENTRAL FREIGHT ASSOCIATION DOCKET

**Docket 84577 (2)**—Establish on sand (except blast, core, engine, filter, fire or furnace, foundry, glass, grinding or polishing, loam, moulding or silica) and gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Indianapolis, Ind., to Lebanon, Ind., 45 cents net ton, subject to Ex Parte 162 and 166 increase.

**Docket 84592 (1)**—Proposed to establish on sand (except blast, engine, foundry, glass, moulding and silica) and gravel, carload minimum weight 90 percent of marked capacity of car except that when car is loaded to full cubical or visible capacity, actual weight will apply, from Riverton, Ind., to Aviston, Ill., 139 cents net ton, subject to Ex Parte 162 and 166 increases.

**Docket 84635 (2)**—Establish on limestone, ground or pulverized, unburned, carload minimum weight 60,000 pounds, from Branchton and Osborne, Pa., to points shown below:

| To | Rates in cents per ton of 2000 lb. |
|---|---|
| Batavia, N. Y., Bridgeport, W. Va. | 2.15 |
| Brave, Pa. | 1.87 |
| Burton and Fairmont, W. Va. | 1.93 |
| Caledonia, Charlotte and Corning, N. Y. | 2.26 |
| Flatwoods and Millwood, W. Va., Morris Run, Pa. | 2.37 |
| Geneva and Lyons, N. Y. | 2.48 |
| Kingwood, W. Va., Larabee, Pa., Machias, N. Y. | 2.04 |

Subject to ExParte 162 and 166 increases. ICC Docket 25220, carriers revised scale.

## CENTRAL FREIGHT ASSOCIATION DOCKET

**Docket 84650 (1)**—Establish on limestone, ground or pulverized, unburned, carload minimum weight 60,000 pounds from McVittys, O., to Stonega, Va., of 314 cents per net ton, subject to Ex Parte 162 and 166 increases.

**Docket 84651 (2)**—It is proposed to establish on sand, all kinds, and gravel, in open-top cars, carload minimum weight 90 percent of the marked capacity of car, except that when car is loaded to full visible or cubical capacity, actual weight will apply from Junction Mahoning Valley Western R. R. Ohio to Cincinnati, 193 cents; Dayton, O., 171 cents; Marion, O., 127 cents; Toledo, O., 128 cents net ton, subject to Ex Parte 162 and 166 increase.

**Docket 84661 (2)**—It is proposed to establish on limestone, agricultural, unburned, in bulk, in open-top cars, carload minimum weight 90 percent of marked weight capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Conneaut, O., to various points shown in the following table:

| To | Rates in cents per ton of 2000 lb. |
|---|---|
| Brainard (Chautauqua Co.), Falconer and Frewsburg, N. Y., Garland, Pa., Lake View, N. Y. and Lottsville, Pa. | 121 |
| Cassadaga and Irving, N. Y. | 110 |
| Forestville, N. Y.; Magee, Struthers and Titusville, Pa. | 132 |
| Gawango and Tidioute, Pa. | 143 |

Subject to ExParte 162-166 increase.

## ILLINOIS FREIGHT ASSOCIATION DOCKET

**Docket IRC 511-659**—To establish rates on crushed stone from Ullin, Ill., to I. C. R. R. stations in Illinois north of Anna, Ill., on basis of five cents higher than rates from Anna, Ill.; also provide same scale of distance rates on agricultural limestone from Ullin, Ill., as that in effect from Anna, Ill.

**Docket ICC 511-568**—Establish on sand, except blast, core, filter, fire or furnace, etc. or gravel, in open-top cars, minimum 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Mackinaw, Ill., to Springfield, Ill. Present—Combination. Proposed—$1.11 per net ton, subject to Ex Parte 162 and Ex Parte 166.

## SOUTHWESTERN FREIGHT BUREAU DOCKET

**Docket 43878 (1)**—To establish joint through commodity rates in cents per ton, 2000 pounds, on molding sand, carload from Saulsbury, Tenn., to destinations in Southwestern Territory, shown below:

| To | |
|---|---|
| El Dorado, Ark. | 216 |
| Alexandria, La. | 254 |
| Corpus Christi, Tex. | 410 |
| Laredo, Tex. | 436 |

**Dockett 43932 (1)**—It is proposed to establish joint through commodity rates on moulding sand, carload, from Camdent, Hollow Rocks, Lipe, Sawyers Mill and Lexington, Tenn., to destinations in Southwestern Territory, shown below:

| To | Rates in cents per ton (*) | (**) |
|---|---|---|
| Ft. Smith, Ark. | 265 | 254 |
| Shreveport, La. | 276 | 265 |
| Tulsa, Okla. | 304 | 293 |
| Dallas, Tex. | 326 | 315 |
| Houston, Tex. | 359 | 348 |

*From Camden, Hollow Rock, Lipe, Sawyers Mills, Tenn.
**From Lexington, Tenn.

## TRUNK LINE ASSOCIATION DOCKET

**Docket 44623** (shippers)—Crude gypsum rock, carloads, minimum weight 90 percent of marked capacity of car, but not less than 80,000 pounds, from Baltimore, Md., to Martinsburg, W. Va., $1.60 per net ton (subject to tariff of increased rates and charges number X-162-A and Tariff of Emergency Charges No. X-166, amendments thereto and reissues thereof) in lieu of current sixth class rate of 18


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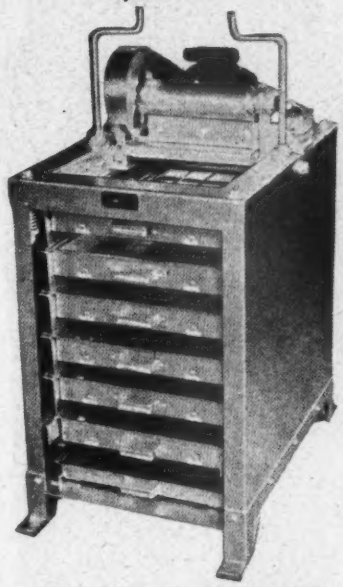
ELIMINATES ERROR from testing procedures



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**STEEL DROP BALL**

NOW — a new design. Cable replacements minimized. Forged connecting link, protected by deep recess, adaptable for swivel or shackle. Strong alloy steel pin. Furnished complete as shown.

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cents per 100 pounds. Reason: Comparable with rates applying from and to other points.

### WESTERN TRUNK LINE NEW APPLICATIONS

**Docket E-41-910**—It is proposed to establish on crushed stone or rip rap, carload minimum weight 90 percent of marked capacity of car from Guernsey, Wyo., to the following cities:

| | Rates in cents per ton of 2000 lb. |
|---|---|
| Benkelman, Neb. | 210 |
| Wray, Colo. | 194 |
| Culbertson, Neb. | 220 |
| McCook and Red Willow, Neb. | 230 |
| Cambridge and Enders, Neb. | 230 |
| Republican City, Neb. | 250 |
| Norton, Kan., Superior and Red Cloud, Neb. | 260 |

**Docket X-D-25-193**—Lime sludge, carload, from Chicago to Amherst, Wis. Proposed 14 cents per 100 pounds. (By shipper)

**Docket E-41-912**—Crushed stone and rip rap, carload minimum weight 90 percent of marked capacity of car. From Mordaunt, Mo., to the following:

| | Proposed | |
|---|---|---|
| Superior, Neb. | S-130* | R-160** |
| Red Cloud, Neb. | | 170 |
| Republican, Neb. | | 180 |
| Alma, Neb. | | 190 |
| Norton, Kan. | | 200 |
| Cambridge, Red Willow, McCook and Culbertson, Neb. | | 210 |
| Benkelman and Enders, Neb. | | 230 |
| Wray, Colo. | | 240 |

*S—stone, crushed
**R—rip rap

**Docket E-41-921**—It is proposed to establish on rip rap stone, carload, from Dell Rapids and Sioux Falls, S. D., to Republican, Neb., 15 cents per 100 pounds.

**Docket E-41-919**—Crushed stone or rip rap, carload minimum weight 90 percent of marked capacity of car, from Golden and Mt. Olivet, Colo., to the following points:

| | Rates in cents per ton 2000 lb. (*) | (**) |
|---|---|---|
| Culbertson, Neb. | 180 | 180 |
| Cambridge, Neb. | 200 | 200 |
| Enders, Neb. | 210 | 200 |
| Norton, Kan., Red Cloud, Neb. | 230 | 230 |
| Wray, Colo. | 125 | 125 |
| Red Willow and McCook, Neb. | 190 | 190 |
| Benkelman, Neb. | 170 | 170 |
| Republican, Neb. | 210 | 210 |
| Superior, Neb. | 240 | 240 |

*Proposed—From Golden, Colo.
**Proposed—From Mt. Olivet, Colo.

## New Limestone Plant Operating Near Utica, Ill.

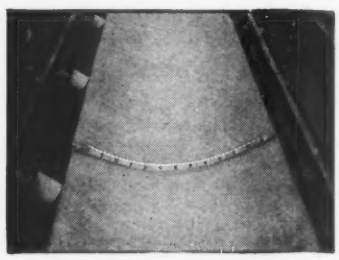
The Utica Agricultural Lime Stone Division of the American Silica Sand Company of Ottawa, Ill., of which C. J. Niesen is president, is operating a new limestone and road rock plant one-half mile south of Utica, Ill. The establishment produces agricultural limestone, road rock, sized stone and chips. Rip rap is also available.

The grounds have been designed to accommodate trucks of all sizes and load five simultaneously. Construction of the plant began in 1946, when the Utica Hydraulic Cement Company was purchased by the American Silica Sand Company. The agricultural limestone division is new to the firm.


*Every Belt needs a* **TALCOTT FASTENER**

Photo below shows a TALCOTT Conveyor Belt Fastener in a large plant.

*It's the*
**STRONGEST**
**SAFEST**
**EASIEST** and
**QUICKEST**
*to apply*



"TALCOTT is TOPS" in industry wherever belts are used—our Fasteners prevent belts from breaking at the joint, reduce time-out for repairs, and increase production. In addition, they're one of the lowest cost fasteners available.

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# NEWS OF CONCRETE MANUFACTURERS

## C. E. Ehle Joins Staff Of Stearns Mfg. Company; Heads Sinterlite Promotion

Of unusual interest to the concrete industry and his many friends, is the announcement by Stearns Manufacturing Co., Inc. of Adrian, Michigan that Clarence E. (Jim) Ehle, has joined the staff of that company.

Few men have a wider experience in the concrete and concrete products field than Mr. Ehle. Some 25 years ago his own concrete block plant at Cleveland, Ohio, was merged with other companies to form The Cleveland Builders Supply Company, Mr. Ehle going with the new concern. Until late 1945 he devoted himself to the ramified operations of the Cleveland company. These included the construction and operation of what is generally regarded as the world's largest concrete block plant. During the recent war, his company did a number of notable large field concrete jobs which "Jim" actively superintended. Among these, was the pouring of the concrete for the new Soo lock—in the dead of winter—which was an outstanding achievement.

In 1945, Mr. Ehle joined the Indiana Limestone Company of Bedford, Ind., as executive vice-president, and later became its president. Several months ago, he resigned that position to rejoin his "first love" the concrete industry.

The Stearns Company announces that Mr. Ehle will devote most of his time to the development and installation of plants for the production of their new lightweight concrete aggregate known as "Sinterlite." His experience and ability make him ideally adapted to this important new product. When possible, Mr. Ehle will be available for consultation with concrete products plant owners.

Mr. Ehle is a director of Cleveland Builders Supply Company, and also a past president of the National Concrete Masonry Association.

## H. F. Thomson Made President Of General Materials Company

Harry F. Thomson has been elected president of the General Material Company, with general offices in the Buder Building, St. Louis, Mo. succeeding the late A. C. Butterworth, who died in November, 1947.

Mr. Thomson has been a vice-president of the company since its incorporation in 1927. He recently completed a three-year term as a national director of the American Society of Civil Engineers. He is a past president of the National Ready Mixed Concrete Association, and is currently serving as a director of the American Concrete Institute. He is chairman of the Highways and Bridges Committee of the Metropolitan Plan Association of St. Louis, and has been active in the St. Louis Chamber of Commerce and the Associated Industries of Missouri.

## GI Farmers Open Block Plant And Find Business Profitable

A business which grew out of an emergency—the need for concrete blocks for farm buildings—is the block plant operated by Gerald, Clyde and Donald Van Enkevort, three World War II veterans of Michigan.

When the brothers returned from military service, they resumed the familiar tasks on the farm of their father, Henry Enkevort, near Bark River, Mich. Early in the summer of 1946 it was decided to build an addition to the barn. Materials, however, being in extremely short supply, the brothers determined to use their own farm gravel and manufacture the necessary concrete blocks. Now the partners are selling their products throughout the Upper Peninsula.

## Universal Pipe Company Plant Destroyed in $50,000 Blaze

The Universal Concrete Pipe Co. plant at Chenango Bridge, N. Y., was destroyed by fire on January 19 with an estimated loss of $50,000. The blaze started in the office and soon spread to the one-story cinder-block plant. Before it could be brought under control the flames had consumed the room and damaged the equipment. E. C. Faber is superintendent of the plant.

## *Coming Events*

*March 4 and 5, 1948—Chicago.* Sixth annual convention and short course, Wabash Valley Ready Mixed Concrete Association, Stevens Hotel.

*March 11-13, 1948—New Orleans.* 40th annual convention, American Concrete Pipe Association.

*July 16-24, 1948—Chicago.* Convention and Road Show, American Road Builders Association, Soldiers Field.

*September 20, 1948 — Colorado Springs.* Directors' meeting, National Ready Mixed Concrete Association, The Broadmoor.

## Interest in Concrete Blocks For Home Building Rising In Milwaukee District

More than 500 concrete masonry homes have been constructed in Milwaukee, Wis., every year for the past four years, declares W. D. Kimmel, district engineer of the Portland Cement Association.

There are several large projects underway, in which from 50 to 100 homes and a number of projects of 15 to 25 homes—all of concrete masonry—are under construction or virtually completed. This indicates a new advancing interest in the utilization of concrete and concrete masonry in home building.

## Czech Firm Joins Association With Two American Companies

Two American companies and a Czechoslovakian concrete pipe firm have been admitted to membership in the American Concrete Pipe Association, according to a recent anouncement from Howard F. Peckworth, managing director. Their names and address are as follows:

Foltz Concrete Pipe Works, Lexington, N. C.; Schmidt Concrete Products, Inc., 1907 S. 8th Street, St. Joseph, Missouri; and Lanna Construction Company Limited, Praha 11, Na Florenci 35, Czechoslovakia.

The applications for membership were first screened by an entrance committee and then voted upon by each member firm of the national association which represents the majority of the country's concrete pipe manufacturers.

## Newfoundland Concern Finds Block Plant Paying Venture

A profitable side line of the Newfoundland Engineering and Construction Company, Ltd., Corner Brook, Newfoundland, is its concrete block business, which has been growing steadily since it was launched in 1946. During this period the firm has acquired equipment valued at $110,000.

Officers of the company include W. W. Cossitt, managing director, and James Candow, field superintendent.

Earl P. Shapland, secretary-treasurer and general manager of the Nelson Concrete Culvert Company, Champaign, Ill., was recently elected president of the Champaign County Builders League.

Rollin Elliott and R. O. Clements have announced the purchase of the plant and facilities of the H. & H. Cement Block Company at Plainfield, Ind. The former owners and operators were H. H. Harrison and Roy Hand.

## Dr. F. E. Kendall Becomes New Research Director Of Master Builders Co.

Dr. Fred E. Kendall has been appointed director of research of The Master Builders Co., Cleveland, according to a recent announcement by the company management. For five years prior to

Dr. Fred E. Kendall.

joining the research staff of The Master Builders Co., Dr. Kendall was chief of research in chemistry for The Republic Steel Corporation.

Dr. Kendall will be head of The Master Builders Co. laboratory, working with Dr. E. W. Scripture Jr., vice-president in charge of research. The Company creates and manufactures technical treatments for concrete and masonry.

## Something Concrete Is Done About the Garbage Problem

A new application of concrete is seen in the "Sani-Bin," a unit made of heavily-reinforced concrete and fitted with rust-resisting, heavy gauge steel doors and covers and designed to hold two standard-size garbage cans. The bins are made by the Sani-Bin Corporation, Buffalo, N. Y.

Treatment of the interior with a chemical process sanitizes the surface and prevents the growth of fungi and odors. Because of the tight seal no insects or rats can enter.

• Sani-Bins and cans installed.

## Bertelson and Kurtz Win Universal Atlas Promotions

Two recent appointments announced by Universal Atlas Cement Company (United States Steel subsidiary) are as follows:

Thomas E. Bertelsen has been made direct sales manager of the Indiana-Michigan district, succeeding Theodore R. Prell, who died recently. Mr. Bertelsen joined the sales department of Universal in 1929.

Melvin L. Kurz is now assistant sales manager, metropolitan Chicago territory. Both announcements were released by A. C. Cronkrite, vice-president for the Central Region.

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John W. Hooper, who was formerly sales manager for the St. Louis district of the Lone Star Cement Corporation, died in that city on January 21. Mr. Hooper joined the sales organization of Lone Star in 1923. He had been in ill health and retired in 1944. He was 65 years of age.

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August Malfregeot, 29, superintendent of the Universal Concrete Pipe Company plant at Syracuse, N. Y., died on January 5 after a brief hospital confinement. He was the son of George Malfregeot, vice-president of Universal, and had been with Universal for more than 10 years.

## 26-Year-Old Ford Job Proves Good Publicity For Plasticrete Company

The Plasticrete Company, of Hamden, Conn., whose laboratory was written up in a recent issue of the CONCRETE MANUFACTURER, has just started using an unusual advertising medium.

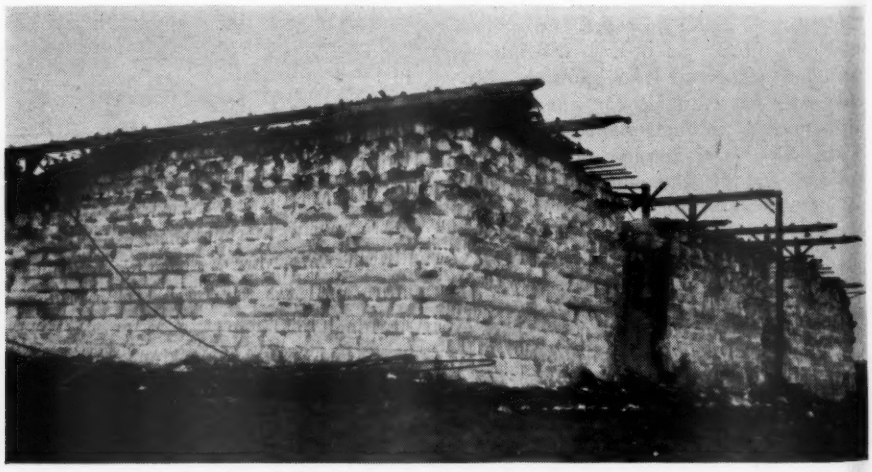
It happens that the company has been in business since 1922, in which year

• Plasticrete's '22 speed wagon.

they sold 15,000 concrete blocks. A few months ago an opportunity arose to acquire a 1922 Model T Ford touring car, and officials of the company, struck with the coincidence in dates, immediately purchased the antique.

The T Model is used for local calls in and around Hamden, and the gear shift and reverse pedals are reported to be supplying many a thrill to the younger generation, used to the finger-tip gear shift and fluid drive. Our information did not include whether or not the venerable Lizzy has a self-starter.

Catchy advertising slogans decorate sides and back of the putt-putt billboard, and reader response is said to be terrific. In addition to, "Engine Room, Keep out!" on the hood, the reading matter includes last year's production figures at Plasticrete, 9,100,000 blocks.



• The Concrete Pipe and Products Association of Seattle, Washington, recently made interesting advertising copy out of the accompanying picture. The photograph shows what remained after a 128- by 180-ft. timber icehouse burned to the ground, with a building loss of $100,000 and an ultimate ice loss of $67,500. The ice weathered the fire in good shape, as the photo shows, but the sun soon accomplished what the fire failed to. The ad pointed out that fire-resistant concrete masonry walls enclosing the non-inflammable ice might have prevented the fire altogether and would in any case have held the loss down to a much smaller figure. It's to be hoped that somebody thought to send a copy of the photograph to the plant owner before he started rebuilding. Without some prodding, he'd probably do it the same way.

# Pipe Plant Benefits from Many Services Provided By Adjacent Parent Company

By WILLIAM M. AVERY

• W. Guy Ramsey, president of Neville Island Concrete Pipe Co.

another ON THE SPOT report

ALTHOUGH the concrete pipe industry passed through the "boom or bust" period some years ago, the business continues year-in and year-out to attract a rather steady flow of new capital. In a normal year possibly 25 or 30 new plants are placed in operation to serve newly developed market areas or to increase service in existing market areas. Among the better plants dedicated to the latter purpose which we have been privileged to visit in recent months is Neville Concrete Pipe Company's installation on Neville Island, near Pittsburgh, Pa. This relatively new concern is a unit of Pittsburgh Coke & Chemical Co. which operates chemical plants, coke ovens, a blast furnace, a cement plant and several other enterprises on Neville Island.

With respect to the availability of materials and services of every description the Neville pipe plant is more fortunately situated than any similar installation we have visited. "Green Bag" cement comes into the plant on a switching charge. Sand and gravel, brought to Neville Island by barge, are trucked to the plant from a storage yard located only ¾ of a mile away, and during the winter these materials are delivered steaming hot. Thus there is no stockpiling problem at all, a circumstance which very materially affected the design of the plant. Coal for generating steam to supply the curing kilns and the plant heating system comes from a company owned coal yard on adjacent property, and electric power is supplied by the parent company's own generating plant.

These might appear to be sufficient blessings for any one plant to enjoy, but on the pure service side the score is even more impressive. All mechanical and electrical repairs and maintenance work are carried out by the parent company's regular maintenance crews, with full availability of shop service of every description. Similarly, Pittsburgh Coke & Chemical's huge $300,000 stock room is available 24 hours per day, seven days a week, to supply parts or supplies required at the pipe plant. And finally, the parent company handles all invoicing, bookkeeping, payrolling, collecting, credit work and purchasing in connection with the operation of the pipe plant.

We have perhaps overemphasized this unusual arrangement with respect to auxiliary facilities and services, but it seems to us that it makes the Neville pipe development unique in that both the plant and the direct personnel are concerned with only one problem—production. Our interest in this instance is somewhat akin to the enthusiasm that a doctor might evince upon finding a patient with a window in his stomach.

Although the Neville plant was designed primarily for the production of concrete pipe, the basic plan incorporated facilities for the manufacture of concrete blocks, guard fence posts, outlet boxes, stepping stones, driveway stones and Dox Block floor and roof systems. This wide diversification was prompted by two important considerations—a desire to provide full-time, year-around employment for the entire crew, and a determination to avoid wasting the tag ends of concrete and steel, left over at the close of a normal day's operations. It is the company's proud claim that not a pound of concrete or steel is thrown away. The casting work with left-over concrete is done by the plant's regular 14-man crew at the close of the regular day's run. Forms are laid out on the floor of one of the kilns and concrete is wheeled in from the hoppers over the pipe machines.

One of the plant's outstanding features is the simplicity of the ma-

• A general view of the plant and yard of the Neville Island Concrete Pipe Co., located on Neville Island near Pittsburgh.

terials handling system. Bulk cement is loaded by conventional methods into a 600-bbl. weigh scale bin located adjacent to the railroad siding and entirely outside the plant building. Aggregates (sand and gravel at present) are stored on the ground between the building and the track spur, or, in freezing weather, in one of the kiln rooms. From these storage points to the three mixers all the handling is accomplished with a single Butler car scoop. Gauging strips welded inside the 12-cu. ft. bucket of this machine make it possible for the operator to load the required amounts of sand or gravel with an error margin of only a few pounds. A second identical machine is held as a standby unit for use in the event of a breakdown.

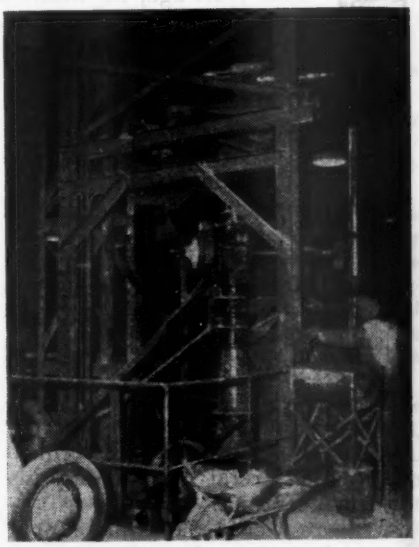
There can be little doubt that a handling system of this sort is vastly helped by having (as the Neville plant has) reliable material sources within a very short distance of the plant, although we have seen the same sort of set up operating successfully under far less favorable conditions. Since the plant in question has been operating only about two years, a long-term cost comparison between the handling system used and the conventional overhead storage system is impossible. So far as initial installation cost is concerned, the company reports a saving of about $70,000. Since there is very little mechanical equipment to be maintained, it is felt that operating costs are at least no higher than with a comparable overhead system.

The main production units in the plant are two Sherman concrete pipe machines and a Besser Super Vibrapac for making concrete block. Pipe and block production are carried on in separate but adjoining rooms. Each of the molding units is served by its own Besser batch mixer, located in a shallow concrete pit at the proper level to facilitate charging with the Butler car scoop. The block machine is served by a 42-cu. ft. mixer and each of the pipe machines by a 28-cu. ft. mixer. At all three stations the concrete mix is discharged into a vertical skip hoist and elevated to a feed hopper located above the molding unit.

In pipe production, units in the diameter range of 12 to 24 inches are turned out on one Sherman machine, and those from 27 to 60 inches on the other. Larger diameters have been cast off the company's 220-ft. truck-high loading dock, using ready-mixed concrete supplied by a nearby plant, but in the near future Neville plans to install a separate mixer for this purpose. The pipe machine room is 46 ft. in width by 121 ft. in length, allowing a generous amount of space at one end for forming and welding steel cages and carrying on other subsidiary operations. Three kilns, each 36 ft. wide by 80 ft. long, open on the machine floor and (at the opposite ends) on the storage yard. Only two of the pipe kilns are normally required in pipe production.

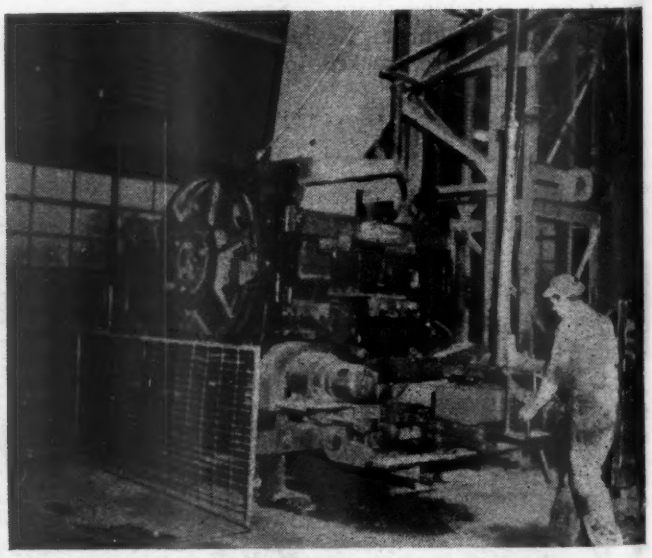
A similar layout was employed in the block machine room, which measures 46- by 40 ft. A single 16- by 80-ft. kiln, with doors at both ends, is used to handle all block curing, although a second kiln of the same size is also available. Loaded 72-unit steel racks are hauled from the machine to the kiln with an Erickson power lift truck. Two other Erickson units have been adapted for handling pipe from the machines to the curing kilns, one being counterweighted to accommodate 4-ft. lengths of 60-in. pipe, or a load of approximately 8,000 pounds. This very sensible provision has entirely eliminated hand buggies from the picture, with a resultant speed-up in production and the exclusion of a fertile source of "gripes" from the men in the plant.

Steam for curing pipe and block and for heating the plant is supplied by a 100-hp. coal-fired boiler. Although firing is done by hand, no special boiler man is required, since the unit, designed for 120 p.s.i. pressure, is hooked up for only 15 pounds. The capacity of the kilns is sufficient to allow a minimum curing time of 2 days in the case of 60-inch pipe, and about 4 days with 15-inch pipe. At present blocks are



• One of the two concrete pipe machines with which the company produces about 15,000 tons annually. This machine is used for diameters ranging from 12 to 24 inches.

• This 12-cu. ft. power scoop feeds cement and aggregates to the three mixers, eliminating conventional overhead storage facilities. A second identical machine is maintained as standby equipment.



• Concrete block are produced on this automatic plain pallet vibrating machine in a separate room adjoining the pipe plant. The machine is fed by a vertical skip hoist.

steamed for about 12 hours, but steps will soon be taken to lengthen this cycle. In the coldest weather temperature in the curing rooms can be held at a minimum of 90 to 95 deg. F. In the pipe kilns Vulcan radiant heaters and water sprays are used, either separately or in combination. Drilled ¾-inch pipes (⅛-inch holes, 12 inches o.c.) are located on the floor at each side of the block kiln. It should be noted that any of the five kilns in the plant can be used for curing either pipe or block.

All large pipe is moved from the kilns to the yard area with a Dempster Dumpster. Smaller units are handled (usually two at a time) with one of the Erickson lift trucks. A 6-ton Roustabout crane is used to load about 90 percent of the pipe onto delivery trucks, although some of the smaller units are rolled onto flat-bed trucks from the loading dock. The company normally maintains a minimum stock of about 4,000 tons of pipe in popular sizes ranging from 12 to 84 inches in diameter. All deliveries of pipe are made by a contract hauler on a tonmile basis. Facilities are available for loading pipe onto railroad cars on the plant siding; also to load pipe, block and other concrete products to barges in the Ohio River.

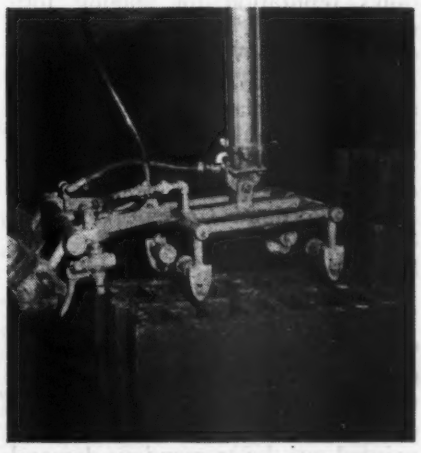
On the day we visited the Neville plant initial tests were in progress with a new piece of equipment called the Faulkner portable block hoist. A development of the Burrell Construction & Supply Co. of New Kensington, Pa., the Faulkner hoist represents a major change from similar machines now on the market in that the units are gripped by the expansion of small, single-acting cylinders which are inserted into the cores. This is in contrast to the external clamping principle generally employed in block hoists. The hoist is used for yarding units from curing racks to stockpiles and for loading delivery trucks from stockpiles. At the Neville plant it was estimated that with the hoist one man could clear all the racks from the previous day's production (about 65) in half a day. Normally the lifting head of the machine is designed to pick up six 8-inch units, four 10's or four 12's, but attachments have been developed for handling 10 or 12 units simultaneously.

With its 14-man crew the Neville Concrete Pipe Co. is turning out approximately 30,000 tons of concrete products annually, with pipe accounting for roughly half of this output. Pipe production actually varies from about 30 to 80 tons per day, depending upon the diameters which are turned out. The normal practice is to run only two of the three molding machines simultaneously, usually the Vibrapac and one of the Sherman pipe machines. If block production stops for any reason, the other pipe machine is put into production immediately. This arrangement gives almost complete flexibility to the plant operations, and virtually eliminates unproductive time. The machines are operated 8 hours per day on a five-day week, but the men work 9 hours in order to turn out the miscellaneous precast products. The production of Dox units for floors and roofs will be carried on temporarily in No. 3 pipe kiln, but eventually a separate building will be erected for this phase of the operations.

As it now stands the plant represents an investment of approximately $250,000, exclusive of the 6-acre tract of land paralleling the main Neville Island highway. A few jobs remain to be done, such as enclosing the area between the cement bin and the plant proper to facilitate all-weather operations. Some refinements will also be made in the facilities for curing block. At present the parent company is carrying out experiments with light-weight aggregate, utilizing slag from the nearby blast furnace, and this material will eventually be used in the production of concrete block.

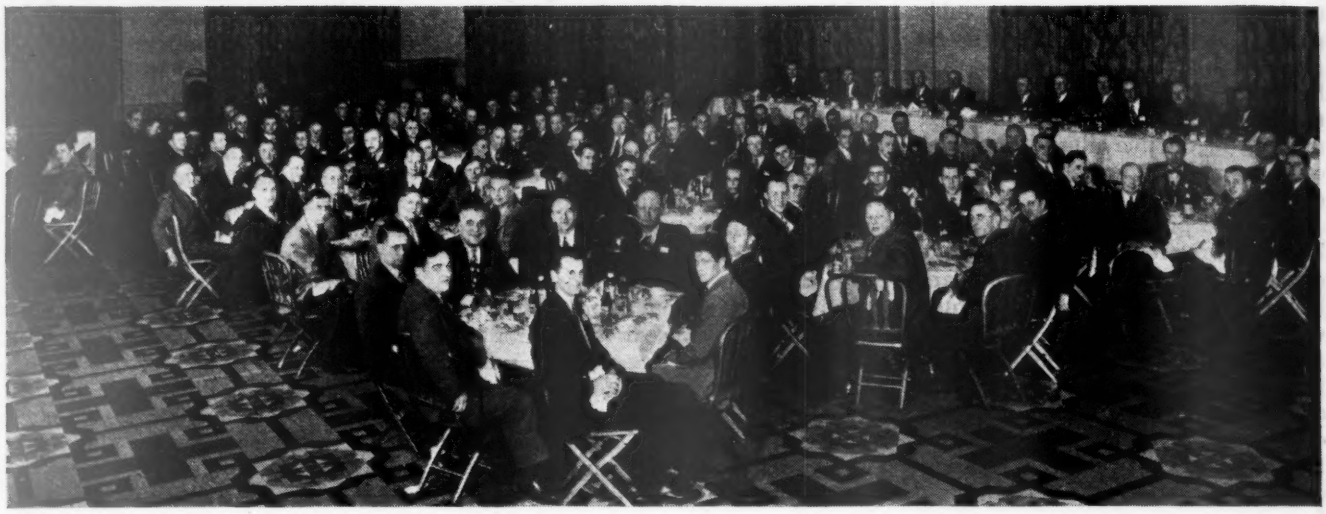
• This view shows how a power lift-truck has been adapted for handling pipe molds. There are no hand buggies in the Neville plant.

• Yard handling of pipe sections is speeded up with this truck-mounted hydraulic-powered machine.



• A new piece of equipment for yarding concrete block was being demonstrated for the first time on the day we visited Neville Island. Air-activated cylinders grip the units from inside the cores.

# Curing and Merchandising Get Top Billing At Wisconsin Assn. Meeting



• Members and guests enjoyed an excellent buffet supper, followed by a stage show, in the Pfister ballroom.

another ON THE SPOT report

The Wisconsin Concrete Products Association, the oldest state group of its kind in the country, held its 28th annual convention at the Pfister Hotel, Milwaukee, on January 29 and 30. Close to 200 concrete block manufacturers, equipment representatives, and other interested individuals registered for the two-day session, one of the high lights of which was a tour through the Milwaukee Testing Laboratories, where measurement and bedding techniques, and compression and durability tests were demonstrated.

Formal papers and discussions in the two principal sessions placed heavy emphasis on technical problems and merchandising. The procession of able speakers who contributed to the program more than maintained the Wisconsin Association's reputation for staging top-notch meetings. Among the speakers were E. W. Dienhart, Henry Buchholz and R. E. Copeland of the national association, Allan Wallsworth, Milwaukee architect, John Shaver, editor of *Concrete Masonry Pictorial,* George A. Mansfield of Huron Portland Cement Co., and Carl Taylor, president of the Waukesha (Wisconsin) State Bank.

In his opening address President William P. Siegert (Economy Block Co., Wauwatosa) urged the Wisconsin block industry to channel more of its promotional effort in the direction of the farm market. He pointed out the tremendous demand that would result if each of the state's 3,000 farmers was sold 1,000 units per month. Mr. Siegert paid tribute to the Portland Cement Association's excellent work in developing farm outlets for the industry's product. This effort, he said, can yield rich dividends only if individual producers follow it up with vigorous promotional campaigns of their own.

Allan Wallsworth,[1] Milwaukee architect, took serious issue with the fumbling efforts of the building industry in general to meet the public demand for housing. The art of building, he said, has been so vitally important that men have not dared to take liberties with it, and in consequence throughout the centuries of recorded history relatively few materials have been utilized. A system of coordination, according to Mr. Wallsworth, is one important answer to the problem. He pointed out that building has been kept going in a large measure by those who could afford to ignore high costs, with small builders being gradually priced out of the market. Unless this trend is reversed, our entire economy will suffer seriously.

Mr. Wallsworth believes that the concrete masonry industry has inherited the mantle of leadership in the construction materials field, and that for this reason it has an especially high stake in the widest and earliest possible adoption of modular standards. To become fully effective in breaking up the bottleneck in building and in restoring prices to levels that will encourage little builders, modular coordination must be adopted by all producers.

John Shaver followed Mr. Wallsworth with a review of the history of *Concrete Masonry Pictorial,* which he edits. He reviewed the growth in circulation since the *Pictorial* was launched four years ago for distribution to architects and builders. Although circulation has more than doubled, Mr. Shaver expressed the opinion that many more producers could with profit incorporate the magazine into their sales efforts.

E. W. Dienhart, executive secretary of the national association, prefaced his remarks with a well-phrased tribute to the Wisconsin group for its long years of endeavor in behalf of the entire industry. He commented briefly on some of the important activities which the national organization carries on in the interest of its members, and extended a cordial invitation to all present to attend the annual meeting in New York March 1-3. In passing Mr. Dienhart mentioned that since N. C. M. A. stepped away from the American Concrete Institute in 1936 and started holding separate conventions, these annual gatherings have grown steadily until today they are much larger than the national meetings of A. C. I.

### Live Steam Curing

*Modern Curing of Concrete Block* was the provocative title of an excellent paper presented by George A. Mansfield, technical service director of the Huron Portland Cement

[1]See *Application of Modular Coordination to Concrete Masonry Construction* in the February, 1948, issue, page 129.

Co. The speaker reviewed some of the earlier curing practices followed by block manufacturers, pointing out that unsatisfactory results obtained with 100- to 120-deg. temperatures led producers to install high temperature equipment on the premise that highly accelerated and more efficient cycles would result. This resulted in a variety of applications of heat and moisture to develop temperatures from 150 to 200 deg. F. at atmospheric pressure, with heat receiving most attention and moisture being regarded as a necessary evil.

• The full panel of officers of the Wisconsin Concrete Products Assn. was unanimously reelected in order to give continuity to their excellent cooperative efforts in furthering the members' interests.

Even though satisfactory strengths may be developed, the blocks are often brittle and subject to breakage in handling, according to the speaker. This happens because a sufficient quantity of moisture is not in contact with the cement to effect complete hydration. In support of this statement, Mr. Mansfield quoted from thermodynamic tables to show the amount of water required per pound of dry air to maintain 100 percent humidity at various temperatures, the figures ranging from 0.043 pounds at 100 deg. F. to 0.658 pounds at 180 deg. and 2.295 pounds at 200 deg. Thus moisture in the air must be increased more than five times when temperature is increased from 120 to 170 deg. Similarly, vapor pressure (the saturation pressure of the moisture in the kiln atmosphere) increases very rapidly as temperatures go up; at 200 deg. the pressure is about 7 times greater than at 120 deg. In addition to forcing moisture within the kiln to the outside atmosphere, high vapor pressure, because of differential in pressure between the kiln atmosphere and the concrete, has a tendency to force moisture out of the masonry unit by evaporation.

Mr. Mansfield, after laying a careful theoretical groundwork, went on to describe a curing cycle developed cooperatively by the Concrete Curing Corp. of Detroit, the Huron Portland Cement Co. and the William Moore Concrete Products Co. He stated that the method, known as the "live steam system", is in constant use by a number of block plants in the East and Middle West, and that it has proved to be economical, highly accelerated and productive of as high quality a unit as is known today.

The system is based on the use of live steam without additional heat or moisture, with the quality of the steam regulated to produce an atmospheric condition of desired humidity within the kiln. It was found that a fire tube boiler of large water capacity and large heating surface is best suited to live steam curing, and that excellent results are obtained if a separate boiler is used for preheating the make-up water before it is fed to the processing boiler.

A single, large-diameter nozzle enters one end of the kiln at the ceiling, midway between the side walls, since the steam as generated is heavier than air and settles to the floor, and the pressure is determined to give sufficient steam velocity to create circulation throughout the kiln. The curing cycle is as follows: (1) the kiln is charged and the door closed; (2) the blocks are given one to two hours to acquire initial set; (3) the steam valve is opened wide and remains open until equilibrium temperature is reached (*i.e.* until the concrete masonry and the kiln air are at the same temperature); (4) the steam is cut off and the kiln remains closed for a soaking period of sufficient duration to bring the entire curing cycle up to a minimum of 15 hours; (5) the kiln is opened and the blocks are dried by circulating the air and exhausting it to the atmosphere.

The speaker pointed out that equilibrium temperature remains constant for a given kiln and a given load. Its importance in the curing cycle results from the fact that temperature lag between the concrete masonry and the kiln air effects a dew point on the units, with the result that moisture is constantly added to the concrete during the steam-on period. It has been found that continued steaming after this equilibrium temperature has been reached definitely removes moisture from the units.

Mr. Mansfield concluded his paper with a discussion of a series of tests which were made to prove or disprove the effectiveness of the live steam curing system. A study of the comparative strengths of units cured by various steam applications is shown in the accompanying table. Five identical kilns, measuring 7 ft. high, 8 ft. wide and 45 ft. long, were loaded with twelve 72-block racks for the tests. Each kiln was allowed to pre-set about 2 hours before steaming, and each had an elapsed curing time of 15 hours from the time the doors were closed until they were opened for stripping.

In kiln No. 1 the steam was cut off when the temperature reached 199 degrees. In No. 2 the live steam curing system was applied, with the steam being shut off at an equilibrium temperature of 170 deg. Kiln No. 3 was steamed to 170 deg. and the steam intermittently turned off and on to hold that temperature for the remainder of the 15-hour cycle; this same pattern was followed in kiln No. 4, except that the temperature was held at 140 deg. In the

**Comparative Strength Study of Steam Application Methods**

| Kiln | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| Maximum Temperature | | 199 | 170 | 170 | 140 | 140 |
| Steaming Time | | 2 hrs. | 1 hr. 25 min. | 12 hrs. | 12 hrs. | 0 hr. 35 min. |
| Age | Specimen Number | Compressive Strengths 8" x 8" x 16" Units | | | | |
| 28 hrs | 1-1 | 866 | 1420 | 692 | 413 | 916 |
| | 1-4 | 821 | 1279 | 573 | 463 | 849 |
| | 1-6 | 681 | 1285 | 531 | 390 | 560 |
| | Average | 789 | 1328 | 599 | 422 | 775 |
| 7 days | 1-1 | 1015 | 1695 | 1033 | 741 | 1366 |
| | 1-4 | 1162 | 1559 | 768 | 629 | 1248 |
| | 1-6 | 1149 | 1938 | 797 | 803 | 1309 |
| | Average | 1109 | 1731 | 866 | 724 | 1308 |
| 28 days | 1-1 | — | 1714 | 1191 | 821 | 1465 |
| | 1-4 | — | 1700 | 1100 | 966 | 1454 |
| | 1-6 | — | 1911 | 989 | 1024 | 1420 |
| | Average | —* | 1775 | 1093 | 937 | 1446 |

*28 day specimens of Kiln No. 1 lost in yard storage.

• Carl Taylor who spoke on the subject "America Tomorrow".

fifth kiln the steam was cut off at 140 deg. (or well below the equilibrium temperature), and remained off. As the tabulated figures plainly show, units from the No. 2 (or live steam system) kiln attained higher strengths at 28 hrs., 7 days and 28 days than units from any of the remaining kilns, averaging 1731 lbs. at 7 days against 1109, 866, 724 and 1308 lbs. for kilns 1, 3, 4 and 5 respectively.

The design of a live steam curing system, according to Mr. Mansfield, requires thorough familiarity with steam and its properties, since the problem is one of thermodynamics rather than of simple heating. Consideration must be given to the size and shape of the kiln, conductivity as determined from the kiln construction, type of aggregate, and cement, yield per sack of cement, weight of the block, number of blocks per kiln and other factors. Weight tests on pallets suspended in kilns using this method of curing show that water is added at the rate of more than 3 gallons per sack of cement. So far curing costs have run around 1 mill per 8-in. equivalent.

### Merchandising

Several speakers were heard on overall problems of merchandising. A Mr. Fredericks of Arthur Towell, Inc., Milwaukee advertising agency, labeled his remarks "It Will Take the Old Spizzerinctum." Perhaps we were inattentive but at any rate we failed to discover just what "spizzerinctum" is, or precisely what can be done with it. Minus "spizzerinctum," the speaker's theme amounted to a very short course in "How to Win Friends, *et cetera.*"

Reference was made to some of the excellent merchandising techniques practiced by the Plasticrete Corp. of Hamden, Conn.

E. J. Schrang of Thalman & Schrang, architects, livened up the proceedings considerably by pointing out a few of the aesthetic deficiences of concrete masonry units. In Mr. Schrang's opinion efforts to improve the appearance of concrete block have concentrated too much on imitating competitive materials. He believes that in appearance block should be allowed to speak for themselves, and that this might be furthered by adopting a 6- by 24-in. unit in place of the present 8- by 8- by 16-in. Qualitatively, Mr. Schrang said, there isn't a finer building material on the market at the present than concrete block. He closed his remarks with the suggestion that the industry try to identify its product by a more appealing name than "blocks".

### Technical Problems

R. E. Copeland of the national association gave a concise and lucid review of the present status of various technical problems affecting the block industry. In connection with curing he summarized the Curing Committee's recommendation for high temperature cycles as follows: maximum temperature 165 to 175 deg.; holding period 30 minutes to 1 hour with lightweight aggregate, about 2 hours with sand and gravel; steam on 1 hour longer than the time required to attain maximum temperature, with a minimum of 3 hours in any case; rate of temperature rise not more than 60 deg. per hour; a soaking period of at least 8 hours and longer if possible. Mr. Copeland said that more information is needed on optimum drying cycles and temperatures, but he believes that good results can be obtained by initial drying with air at 140 deg. and 60 f.p.m. velocity, followed by an increase to above 212 deg. and an appreciable reduction in velocity.

Although most of the industry's output meets specifications with respect to strength and durability, Mr. Copeland feels that greater attention must be given to the 40 percent absorption requirements. This would, he believes, improve the competitive situation by overcoming the problem of shrinkage cracking.

Pointing out that economy of use actually created the concrete masonry industry, the speaker said that one of the most critical problems affecting the industry today is the very high cost of laying block.

• We didn't catch the name, but she was cute.

Against a laying cost some 20 years ago of about 4½ cents per unit, Mr. Copeland referred to present costs ranging from 15 to 45 cents per block. He questions the usefulness of reducing manufacturing costs by ¼ or ½ cent per unit when such savings are so quickly consumed by increased laying costs. Although recognizing that the block industry cannot directly affect laying costs, Mr. Copeland believes that it could well focus worthwhile attention on the employment of more efficient methods on the job, and that in time the labor unions might accept such methods.

### America Tomorrow

Carl Taylor, an exceedingly able speaker and president of the Waukesha (Wisconsin) State Bank, brought the formal sessions to a close with an excellent address in the best Fourth of July tradition. He referred to the great confusion resulting from the deep changes which have taken place in governments and man in the past 18 years, and advised Americans to give careful thought to the kind of country they want to leave for their children. If we are to make more changes in the American way of life, Mr. Taylor urges that it be done with wide-open eyes and feet planted firmly on the ground. Although a century and a half of freedom has given Americans more material benefits than have been enjoyed by any people in history, Mr. Taylor pointed out that a growing number of people seem to favor increasing federal power at the expense of individual liberty. According to the speaker, the loss of freedom which has occurred throughout the world in the last 15 years is greater than all the gains affected in any 500-year period in history. He finds a grim warning in this for all Americans.

# New Type Masonry Unit Promises Speed Up, Economy in Home Building

another ON THE SPOT report

DOWN through the years chaps with an inventive turn of mind have periodically addressed themselves to the by no means small task of developing a new basic shape of concrete masonry unit to rival the long-accepted standard 3-core block.

**By WILLIAM M. AVERY**

Although some quite ingenious attempts have been made in this direction, their success has usually been of a temporary and rather local character, and it seems safe to say that up to the present time no serious inroads have been made in the wide preference for the conventional type of unit.

In recent months a promising new candidate called the Redi-Furred block has made its appearance, and it is attracting wide interest among architects, builders and block manufacturers. A conventional, modular unit so far as its exterior dimensions are concerned, the Redi-Furred block (see cut, p. 164) differs from a standard unit in the shape and staggered arrangement of the core spaces. Developed by the F. C. George Machine Co. for production on the George Press-Pac block machine, the unit was designed to provide a concrete block on which plaster could be applied without furring and lathing. Tests indicate that heat losses through the double, longitudinal air spaces of the Redi-Furred unit are actually about 25 percent less than through a conventional 2- or 3-core unit, and that this advantage is gained without any loss in structural properties.

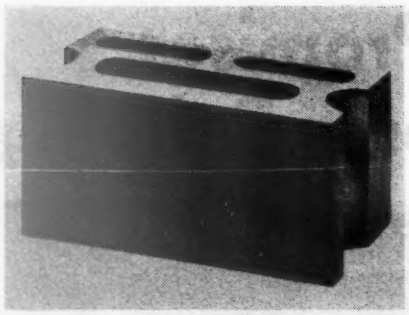
Several weeks ago we made a special trip up to Madison, Wisconsin, where the new-type units are being produced by Bill Hinn's Madison Redi-Furred Block Co. Mr. Hinn, who also operates the Reedsburg (Wisconsin) Redi-Furred Block Co., established the Madison plant late last year in order to turn out some 225,000 foundation, back-up and partition units for the Tilton Terrace Apartments project in that city. The project calls for 36 buildings of six apartments each, in addition to auxiliary structures, and the block firm has contracted to supply 140,000 8-inch units for back-up, 78,000 4's for partitions and 8,000 12's, all to be made of cinder aggregate. Even by working two shifts to turn out 4,000 blocks per day, it will take close to three months to run this sizable order through the plant.

With the exception of racks, lift trucks, block machine and pallets, Madison Redi-Furred is using facilities leased from the McCloskey Cement Products Co. Mr. Hinn plans to build a new roomier plant in the spring. Sand is supplied by the Madison Sand and Gravel Co., which is located on adjacent property, and pea gravel is hauled to the plant by

• Bill Hinn (left), who runs the Madison Redi-Furred business, and the plant crew were dressed for Arctic blasts when they lined up for this picture. The outside temperature at the time was 5 below zero.

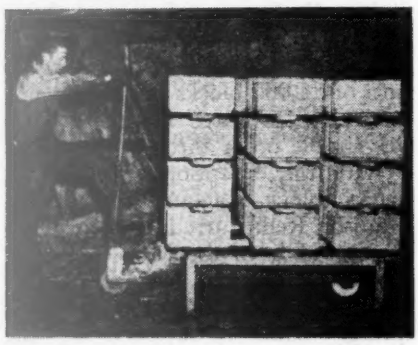
• Below, left: A general view of the Madison Redi-Furred plant at Madison, showing the storage yard, kilns and plant proper

• Below, right: This 12-hp. horizontal oil-fired boiler furnishes steam for curing and for heating the plant.



• One of the Redi-Furred units, showing the parallel longitudinal air spaces.

• Units are molded on this compact, hydraulically-powered machine. Cores and mold box vibrate while the pressure head exerts a force of 2,400 pounds from above.



• The 48-unit racks are placed on a turn table to facilitate loading and picking up. Handlift-trucks move the units to the kilns.

trucks from a pit about two miles distant. Aged, uncrushed cinders are shipped by rail from the Milwaukee Cinder Co. and processed in a 10- by 18-in. roll crusher set up outside the plant.

Because of the extreme availability of sand and gravel, neither of these materials is stockpiled, but about 300 cu. yds. of cinders are normally kept on the yard. Cinder cars are unloaded into the stockpile with a Quick-Way ¼-yd. crane, and the same machine is used for feeding a small hopper mounted on the roll crusher (see cut). The crusher discharges directly into a dump truck in which the cinders are hauled to an elevator feed pit just outside the plant building. Space is available for storing one 250-bbl. carload of bagged cement.

The two-compartment overhead storage bin has a total capacity of only 16 cu. yds., against an average daily consumption of 25 cu. yds., which adequately explains Mr. Hinn's desire to build a larger plant. For cinder-block production the aggregates are blended in the proportion of 40 percent pea gravel to 60 percent cinders. The materials are mixed for 5 to 6 minutes in a 1-sack Blystone mixer and discharged by gravity into the block machine hopper.

The molding unit is, of course, the hydraulic George Super-V with Press-Pac, which is rated at 360 to 480 blocks per hour. In this machine both the mold box and the cores are subjected to high-frequency vibration, while the hydraulically-powered Press-Pac head packs the materials by going down into the mold box 6 to 10 times. Three finger-tip valves control the hydraulic packing stripping mechanism. The freshly molded blocks are stored in welded steel 48-unit racks which were also furnished by the George company. To facilitate loading and handling the racks in the rather cramped space available Mr. Hinn designed and built a turntable which is located just in front of and to the left of the block machine.

Loaded racks are placed in the kilns with a Red Giant hand-operated lift-truck. Each of the three kilns measures 8½ ft. in width by 60 ft. in length, and each holds approximately 1,100 standard 8-in. units. The blocks are cured with live steam supplied by a 12-hp. horizontal oil-fired boiler. Maximum temperature attained is about 120 deg. F., and the steam-on cycle is usually maintained for 20 hours. The kilns open at both ends so that the cured units can be removed into the yard without impeding operations in the area of the block machine. An Erickson power lift-truck moves the cured blocks from the kilns to a 32- by 80-ft. covered storage area, where the units are cubed on 40- by 48-inch wooden pallets. By placing one cube on top of another, the enclosed storage area (which was developed primarily to protect the units during winter) can accommodate 15,000 blocks.

The cubes are placed on flat-bed trucks by the power lift-truck, with the pallets in place, and the same trucks return the pallets to the plant after unloading at the job. It would appear that due to the unique arrangement of air spaces in the Redi-Furred block, some form of palletizing is absolutely essential if the units are to be handled in cubes. This can scarcely be regarded as a serious criticism, however, since a number of producers find pallets preferable even for units which can be successfully handled with fork trucks.

With a 7-man crew the Madison Redi-Furred plant has turned out from 360 to 430 units per hour, but

(*Continued on page* 172)

• A view in the storage yard shows the cinder stock pile, the ¼-yd. clamshell and the roll crusher used for processing the cinders.

• Cured units are moved to the yard or to the covered storage area with a power lift-truck.

# Cincinnati Meeting of Ready Mix Assn. Elects C. "Dolly" Gray to Presidency

## Leaders of National Group See Bright Future, Predict 23,000,000 Cu. Yds. in 1948

• Robert F. Porter and C. "Dolly" Gray, who were elected vice-president and president of the association at its 18th annual convention.

another ON THE SPOT report

AT its 18th annual convention, held in the Netherland Plaza Hotel, Cincinnati, January 21 to 23, the National Ready Mixed Concrete Association set a new attendance record, and in the process put on a bang-up show for the throngs of producers and machinery manufacturers who participated. In some part the enthusiastic turnout for the 1948 meeting was attributable to the reappearance, after a lapse of six years, of machinery and equipment exhibits. Fifty-seven companies displayed their wares to make the show one of the most impressive in the history of the industry.

To an even larger extent, however, the success of the 18th annual convention was a direct measure of the industry's outstanding success in winning wide recognition for its product. For this the association and its founders and leaders could take a well-earned bow. With 280 active members and 42 associates, total membership in the organization stood at a all-time high, and membership growth was more than keeping pace with the growing industry.

In keeping with the practice of past years, general-interest sessions covering labor, construction outlook, tax problems and related subjects were held in conjunction with the National Sand & Gravel Association's annual convention, held in the same week. These sessions were reported in detail in the February issue of PIT AND QUARRY, pages 71 to 84 inclusive, and the present report therefore covers only those meetings specifically designated for the ready-mixed-concrete group.

### President's Address

Frank P. Spratlen Jr., retiring president of the association, opened the first session with a brief review of important recent developments affecting the industry. He referred to the Taft-Hartley Act as one of the outstandingly bright spots in the labor picture. Mr. Spratlen pointed out that the ready-mixed concrete industry is definitely covered by the act, and that for the first time in many years there is hope that collective bargaining will become a two-direction thoroughfare.

Mr. Spratlen also made mention of the association's excellent financial position, and he disclosed that 38 active members and 36 associates joined the organization in 1947. The speaker expressed some disappointment with the membership's response to the recently instituted safety contest. If the industry chooses to ignore its responsibilities in the field of safety, Mr. Spratlen said, there is always a possibility that its trucks might be ruled off the streets and highways. He urged the widest possible participation in the 1947-48 safety contest as one excellent means of improving the industry's safety performance.

In connection with the opening session of the meeting, it was announced that the board of directors had elected Nathan C. Rockwood to honorary membership in the association in recognition of his long and faithful service to the ready-mixed-concrete industry.

The final business of the 3-day meeting was the election of officers to serve the association in 1948. C. "Dolly" Gray (Ready Mixed Concrete Corp., Indianapolis) succeeded Frank P. Spratlen Jr. as president of N.R.M.C.A. Robert F. Porter (Harry T. Campbell Sons Corp., Towson, Md.) became the new vice-president, and William Moore (J. P. O'Connell Co., Boston) was chosen for the office of secretary-treasurer. R. C. Collins, Albert R. Shiely, M. Eugene Sundt, Herbert Jahnke and A. C. Modahl were elected to fill vacancies in the association's 12-man board of directors.

### Report of Executive Secretary

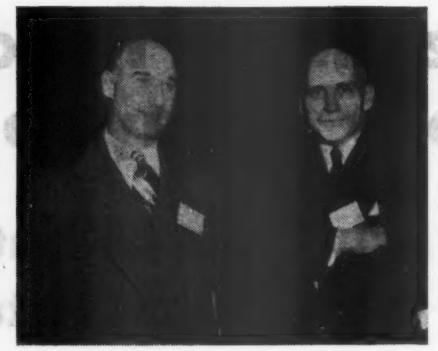
Against the ever-present possibility that new government controls may be granted by Congress, Vince Ahearn advised ready-mix producers to abandon the practice of doing business on a strictly day-to-day basis. All terms of sale, he said, should be carefully spelled out in order that a definite policy can be established for whatever month might be made the basis for new controls.

Mr. Ahearn mentioned the high level of construction activity in 1947, with four-fifths of the total dollar volume in the private enterprise column. Although the dollar volume showed an increase of 28 percent over 1946, he pointed out that performance was up only 7 percent because of increased costs. Federal aid for highways, according to Mr. Ahearn, is now of considerable importance to the ready-mix industry, with $125,000,000 definitely allocated for urban work.

The speaker urged his audience to pay closer attention to problems of safety and health, and to effectuate improvement in labor agreements. Too many agreements are made at gun point, with the unions making all the demands and management finding itself perpetually on the defensive.

Closed shops and check-off provisions are no longer matters of policy but of law, Mr. Ahearn said, in reviewing some of the provisions of the Taft-Hartley Act. He sees no prospect of repeal, but believes, on the contrary, that amendments will be made to render the law even more restrictive.

Mr. Ahearn believes that voluntary allocation of scarce materials may soon be approved by the President, with steel coming first, and then railroad transportation, agri-



• Upper row, left: Stephen Stepanian, grand old man of the ready-mix industry, and M. Eugene Sundt, who was elected to a 3-year term on the association's board of directors. • Center: R. V. Roupe (Crown Concrete Co., Des Moines) and G. A. Blunt (Marquette Cement Mfg. Co., Cedar Rapids). • H. O. Anderson (Middle States Concrete Co., Ashland, Ky.) and J. Foster Oury (Imperial Ready Mixed Concrete, Chicago).

• Left: B. H. Dale (Dale & Rankine, Newark, N. J.) and W. E. Gallaway (North Jersey Quarry Co., Morristown, N. J.). • Right: W. A. Wilson (Pit and Quarry Publications, New York) and R. F. Moss (Scientific Concrete Service Corp., Elizabeth, N. J.).

• Gus Lowe and Dick Lowe (both of Lowe Machinery Co., Chicago); Bob Smith and Bob Bremer (both of T. L. Smith Co., Milwaukee).

• George W. Garver and Archie Koder (both Jaeger distributors from Toledo); William L. Wolfe (Jager Machine Co., Columbus, O.).

culture and trucks in that order. He pointed out that once allocation starts it will almost inevitably spread out to embrace all aspects of the national economy. Against this possibility, the speaker urged the ready-mix industry to repair and rehabilitate operating equipment as quickly as possible.

Mr. Ahearn announced that the association's convention in 1949 will be held at New York in the week of February 11th, with a return to either Cincinnati or Chicago the following year. The 1951 meeting is definitely scheduled for New Orleans.

## Director of Engineering

Stanton Walker briefly reviewed production trends in the industry since the peak output of 25,000,000 cu. yds. in 1942, when ready-mixed concrete accounted for about 16 percent of all portland cement sold. Estimates for 1947 indicate an output of about 20,000,000 cu. yds., representing approximately 14 percent of cement sales. With ready-mix constituting so large a segment of the total concrete used, Mr. Walker pointed out that there are substantially no problems of concrete which are not pertinent to ready-mixed concrete.

According to Mr. Walker, the No. 1 problem of concrete is durability, although emphasis of the problem should not be allowed to overshadow the fact that the vast majority of concrete performs with efficiency and economy the service for which it was intended. The ready-mix industry, Mr. Walker said, can contribute to more durable concrete by giving proper attention to control of quality, judicious selection and use of ingredients, and (in some cases) by advising the user concerning placement, curing, drainage and other factors. Over-wet concrete which segregates as it is placed is

always a potential source of trouble when it is exposed to the weather or other aggressive agencies.

Many factors, the speaker went on, affect the resistance of concrete to freezing and thawing, such as physical characteristics and moisture condition of the aggregates, moisture condition of the concrete, amount and source of the cement, entrained air and time of mixing. He particularly stressed the fact that any concrete, no matter how good the ingredients, will break down rapidly if nearly enough saturated with water.

Mr. Walker does not believe that the mere use of additional cement is likely to increase the durability of concrete, and he mentioned that in laboratory tests 6½-sack concrete has shown less resistance to freezing and thawing than 5½-sack concrete. What is wanted in practice is enough cement (and no more) to give the required strength and to produce a workable concrete of low permeability. Although entrained air is not a cure-all, in Mr. Walker's opinion it will, if intelligently used, go far in aiding concrete to resist destructive agencies of the weather. In addition, he said, there is strong evidence that entrained air will do much to compensate for the deficiency of certain borderline aggregates, particularly fine aggregates.

The principal obstacles to controlling quality of ready-mixed concrete, Mr. Walker said, are all tied up with the measurement of water. They involve lack of uniformity of moisture content in the aggregate, lack of knowledge of the amount of moisture content in the aggregate, inadequacy of water measuring devices, handling of wash water, leaky valves and many other factors. To illustrate this point, the speaker mentioned that a 2 percent change in sand moisture in a 1-cu. yd. mix would account for 24 pounds of water (almost 3 gallons), or enough to change the slump more than 2 inches. Certainly, he said, such examples as this indicate that the industry is badly in need of some additional control device of ready application.

In regard to the transportation of concrete in non-agitating equipment, Mr. Walker expressed the opinion that nothing of a revolutionary nature has taken place. Concrete could always be hauled in this fashion within certain limitations, and the only new factor now present is that air entrainment may reduce some of the limitations. Mr. Walker believes that there is, as there has always been, a place for non-agitating equipment, and that the way to prevent abuse of the practice is by instituting and enforcing suitable quality specifications.

Mr. Walker briefly outlined some of the work of the research laboratory which is carried on in cooperation with the National Sand & Gravel Assn. Special facilities for this work are included in a building program at the University of Maryland where the laboratory is located. He mentioned that the association's support of a graduate fellowship will not become effective until the new buildings are available.

### Cement Supply in 1948

To give the ready-mix industry as clear a picture as possible of the supply situation with respect to cement in 1948, the association asked every cement company in the United States to supply information on the subject. The following questions were asked: (1) How will cement supply in 1948 compare with the total available in 1947? (2) Was cement supply restricted in your area in 1947, and if so, what was the cause? (3) Have export commitments reduced the domestic cement supply in 1947, and will cement exports in 1948 affect the domestic market?

In reporting on the results of this survey, Vince Ahearn disclosed that 52 cement companies, well distributed both geographically and as to size of output, had sent in replies. Taking the country as a whole, he said, it appears that the ready-mix industry can depend on more cement in 1948 than it was able to get in 1947. Unless severe car shortages develop, there are prospects that cement output will increase about 10 percent over last year. Fortunately, new productive facilities are in prospect in the areas which suffered most acutely from the shortage in 1947, but there is no positive assurance that local shortages will not reappear in the last half of 1948.

Almost universally, Mr. Ahearn said, the cement companies mentioned car supply as one of the factors contributing to spotty and inadequate supply in 1947. Strikes at mills in the East and South cost badly needed production last year, but there are good prospects that strikes will not be an important factor during the current year. Although car supply will continue to be a serious problem, the condition is showing some improvement.

Referring to freight rate increases of 20 percent since last October, with further increases in prospect by April or May of this year, Mr. Ahearn pointed out that excessive rates always raise the question of whether a particular company can continue economically to reach markets in which it has competed.

Letters received from cement companies strongly indicated that cement shortages last year were not due to export commitments, and it seems unlikely that such commitments will be an important factor this year. Out of a total estimated production of 184,000,000 barrels in 1947, only 3 percent went to the export market.

Despite a strong probability that 1948 output of cement will be larger than any year in the history of the industry, Mr. Ahearn concluded his remarks with the somewhat glum prediction that ready-mix producers will have supply problems hardly less serious than those of 1947.

### P. C. A. Research Plans

As at Los Angeles last year Dr. A. Allan Bates, vice-president of the Portland Cement Assn., gave one of the most interesting talks. His subject this time was *Research Plans of the Portland Cement Assn.* After commenting on the similarity of interests of the aggregates, ready-mixed concrete and cement industries, Dr. Bates presented a brief but very complete breakdown of the basic classes of engineering materials, their histories and importance. This showed that concrete is in age a baby compared to most other materials but that in importance it has become a giant, exceeding in annual tonnage (250,000,000 tons) all the others combined. Because of its permanence and other advantages, he said, there is no telling what the future developments will be except that concrete is certain to increase in importance. More details on this subject were given in the review of his talk in the writeup of the concurrent meeting of the National Sand and Gravel Assn. in the February issue of PIT AND QUARRY.

Dr. Bates then commented on the statement which is often made by poorly-informed people to the effect that modern concrete is inferior to that produced before 1930. In any discussion of this subject, he said, it should be remembered that: (1) more than half of all the concrete ever poured has been poured since 1930; (2) most of the older concrete, much more than half, has long since disappeared; (3) since 1930 the applications of concrete have been bolder and more chances are being taken.

Dr. Bates then went on to give a rough outline of the expanded and more detailed research program planned by the P. C. A.

### Sales Agreements

*Suggestions for Sales Agreements in the Ready Mixed Concrete Association* was the topic developed by Robert C. Collins, chairman, Committee on Merchandising, at the Friday morning session of the N. R. M. C. Assn. Mr. Collins was introduced by Robert C. Porter.

Among the contributions of the ready-mixed concrete industry to the construction activity in the United States, the speaker mentioned lower costs, improved quality, greater speed of construction, and the lengthening of the construction season, with resultant increased profits to employer aand employee. Mr. Collins paid tribute to the cement industry as the major influence in keeping costs down in a period characterized by radical price expansion.

Sales agreements, the speaker declared, can be fully justified because of these important contributions made by the ready-mixed concrete producers.

He cited the following legitimate reasons for seeking the protection afforded the seller by the sales agreement: the highly specialized, expensive equipment needed; the perishable nature of the product handled; the minute-to-minute basis of the demand for concrete; the variation in volume due to weather and job conditions; the necessity to be equipped for supplying the peak demand of the trade and yet remain sufficiently flexible to make money when demand drops off.

Mr. Collins several times called attention to Vincent Ahearn's pamphlet on sales agreements, copies of which had been distributed throughout the audience.

To clinch the matter, the speaker reminded his listeners that the buyer is always in the favored position and the seller at a disadvantage. Said Mr. Collins: "He (the buyer) can always withhold payment and he can always put tremendous pressure on the seller to get the change in conditions that he wants."

In the lively open discussion which followed this talk the first question considered was: "How can the company be protected in the event that the concrete is tampered with after delivery?" Gordon B. Kingsbury, Richard Scully, Inc., Coatesville, Pa., suggested that a campaign might well be carried on jointly by the Portland Cement Association and the National Ready-Mixed Concrete Association to demonstrate to customers the danger of adding too much water. Past President Frank P. Spratlen Jr. passed on a suggestion his company finds workable. The driver has the customer indicate on a b l a n k the amount of water added. The person making this entry and signing the slip, said Mr. Spratlen, must be an authorized agent, not just any laborer. There was some discussion on this point, one producer remarking that the foreman (or person of similar rank) in charge is often not available at the time the delivery is made. The policy of making record of the quantity of water added, however, was recognized as a means of protection for the producer in meeting possible complaints from the customer later on.

There was some difference of opinion on the question of where the responsibility for a batch of concrete should rest, with the seller or the buyer. Mr. Collins called attention to the distinction between assuming responsibility for the concrete *in place* and responsibility for the quality of the concrete *to be placed*. "We are certainly not going to assume the responsibility for improper placement of our concrete," he declared. . . . "If the contractor is going to add water to the concrete you send out, which meets the specification or is best suited to the job at hand, then surely the least you can do is to ask him . . . to accept the responsibility for the quality of the concrete that he is going to place."

When the discussion turned to advertising suggestions, booklets, folders, a series of letters, placards and

• J. A. Nicholson (J. A. Nicholson-Co., Toledo); Forrest R. Burk and Vincent Zibritsky (both of The Bode-Finn Company, Cincinnati).

• H. A. Coleman (Missouri Portland Cement Company, St. Louis, Mo.); Delman Tison (Tison & Hall Concrete Products Company, El Dorado, Ill.); G. N. Knapp (Missouri Portland Cement Company, Benton, Ill.); and James O. Hall (Tison & Hall Concrete Products Co.).

newspaper insertions were mentioned. Louis C. Schilling described his firm's proposed series of appropriately illustrated letters. Mr. Spratlen suggested that placards posted in strategic places such as loan and homestead association offices would have a positive value for the ready-mixed concrete producer. It was pointed out by another member that newspaper advertisements make their strongest appeal in small communities. D. W. Kelley (Arizona San-Rock Co., Phoenix, Ariz.) told of his firm's $4,000 venture—the printing of 500 bound booklets, 1500 unbound copies and 2,000 miniatures. The booklet describes the firm's operations and product.

On the subject of how best to collect waiting time, Mr. Collins stated that the psychological effect of billing the customer for waiting time is of genuine value, even though the charge might never be collected.

The discussion veered back to advertising and Charles W. Shirey, C. W. Shirey Co., Waterloo, Iowa, reminded the group that much could be done to win the public's good will by establishing superior safe driving records. To offset the strong prejudice against transit trucks on the road, he pointed out, producers should demand careful driving from their operators. He also emphasized the publicity value of insisting upon having trucks kept clean.

### Cost Accounting System

O'Neal M. Johnson, committee consultant on the committees for cost accounting systems for the sand and gravel and ready-mix associations, had to leave after the gravel meeting, and his report to the ready-mix group was given by John W. Murphy (Union Sand & Gravel Co., Spokane, Wash.), a member of the committee. He said that the outline for the proposed system will probably be ready in the Spring and that the system should be ready for use early in 1949. Many producers, said Mr. Murphy, especially those new in the business, need to know more about their costs in order to conduct their operations at a profit. Things are booming now but the day is not far away when demand will fall off and price-cutting will begin. It would be far better for all concerned if producers knew exactly what their costs were when this time arrives.

This cost accounting system, said Mr. Murphy, would not cost much. Most producers now do ordinary bookkeeping and this is 85 percent of the cost of the complete system proposed. This system, he said, will not in itself lower costs, but it will show the producer where they can be cut, and will also give him other information vital to the profitable operation of his business.

### Collective Bargaining

Under the heading of *Administration of Collective Bargaining Agreement for Ready Mixed Concrete Industry in Detroit Area,* Norman J. Fredericks, (Koenig Coal & Supply Co., Detroit) gave an intelligent and complete account of the manner in which producers in that area are working with the unions and the workers to the benefit of all concerned. According to Mr. Fredericks this agreement is not area- or industry-wide; ten producers in the area participate in it and the union gets the same agreement from non-participating producers. He pointed out that this group is in no sense an association, having ony this one purpose and aim. The original agreement was signed by each company and it specifies that each producer is responsible only for his own actions. There is, said Mr. Fredericks, one contract with the teamsters' union for the drivers and bin men, and another with the machinists' union for the mechanics. There are no negotiations for common labor as this is included in other lines of business in which some of the participants are engaged. Those exclusively in the ready-mix business make their own agreements for common labor.

The teamsters' is the key contract, said Mr. Fredericks, and the one for the machinists, which expires a little later, is guided by it in form. These negotiations began in 1940 and a year ago it was found that the contract needed to be improved with respect to vacations, seniority, etc. In making the new contract the group had their counsel questionnaire the producers and prepare a confidential survey. Mr. Fredericks here emphasized the necessity for outside help to do this job and said that they were fortunate enough to find a counsel who would firmly protect the producers' rights and know his subject thoroughly, but who is also fair in his dealings with the union. The entire group sat down and arrived at a decision; then they appointed a committee of three to cooperate in a discussion with the union, the counsel acting as spokesman, the others advising on business matters. In this manner one viewpoint was presented to the union instead of several. The union presented a long list of demands and the counsel presented the proposed new contract, and after a few more meetings a mutually satisfactory agreement was reached. Mr. Fredericks believes that this contract is helpful to both parties and that it has eliminated many of the disputes which foment discord and distrust.

It was later decided that it was advisable to give the employees all possible information on the contract so that they would know what their rights and duties are. The union agreed to print the entire agreement in small pocket form and give a copy of it to each worker. The companies prepared a briefer notice explaining the contract and its more important features, and posted copies in their plants and offices. Included also were the major working rules and the disciplinary action which the contract specifies for their enforcement. As a result, said Mr. Fredericks, the employees now have a good working knowledge of the contract and the moral effect has been excellent.

The counsel interprets the contract for the producers and all grievances are referred to him for adjustment. This action has shown the union that the companies are trying to be fair and the union now often goes to him with its problems, which he settles without consulting the companies. According to Mr. Fredericks, their counsel has done an excellent and impartial job, and both unions and workers are more likely to believe that a counsel acts in good faith than if the employers themselves made the decisions. In closing Mr. Fredericks said that in labor relations, as in other things, we must constantly strive to do a better job.

Ray V. Warren (secretary and treasurer, Ready Mixed Concrete Assn. of Metropolitan Pittsburgh) opened the discussion by a recital of the manner in which these problems are being handled in his area. In Pittsburgh, he said, similar agreements have been in use for ten years and they are wider in scope. Three unions are dealt with: labor, drivers and mechanics, and these also cover affiliated businesses in which many of the members are engaged, including sand and gravel, concrete products, coal, building supplies, etc. Mr. Warren told how, in 1937, he was given the job of coordinator to bring together the unions and employees. The union, he said, insisted that no lawyer be employed, and his own background, which included first-hand knowledge of the workers problems and slants, was acceptable to them.

As coordinator Mr. Warren keeps his group informed on labor developments, and information from other sources and on other industries is also tabulated. He then meets with his producer group and they exchange information and experiences before going into conference with the union representatives and a group of workers. At the final meeting Mr. Walker states what the companies are willing to give, thus directing all arguments at him and avoiding any animosities toward the employers. He cited some examples of rulings he had made both for and against the producers which indicated his fairness and impartiality. In closing Mr. Warren endorsed the Detroit practice of advising employees of all agreements.

In answer to questions Mr. Fredericks said that the working rules flowing from the contract are not a part of it, also that the company prerogative clause gives the company brief general rights of action which are described in more detail in the rules. The contract, he said, provides for overtime over 8 hours per day or 40 hours per week, whichever is greater. Mr. Fredericks emphasized that a producer should admit when he is wrong for the moral effect. As a lawyer himself he also pointed out that a lawyer who follows legal practice of fighting for right and wrong can only cause trouble; common sense and a knowledge of labor relations are necessary for this job.

### Safety Awards

A highlight of the ready-mix meeting was the presentation of trophies to the winners for the first year of the association's safety contest. The two winners of the 1946-7 contest, which ended June 30, 1947, were: in the large plant class (Class A)—The Frank J. Knight Co., Centerline, Mich.; in the small plant class (Class B)—The Grand Junction Building Materials Co., Inc., Grand Junction, Colo. Both companies had perfect records. The attractive bronze trophies (see PIT AND QUARRY, Feb., 1948, p. 125) were presented by PIT AND QUARRY and similar awards will be provided annually. In accepting the Knight award Ted Knight of that company said that frequent safety meetings are held, and that careless drivers are laid off until their trucks are repaired. In accepting the Grand Junction award R. E. Grogan said that his company had actually gone 18 months without accident and would be out for another trophy next year.

The actual presentation of the trophies was made by H. F. Thomson (General Materials Co., St. Louis), chairman of the safety committee. Mr. Thomson briefly described the events leading up to the decision of the association to conduct a safety contest and of the offer by PIT AND QUARRY to provide the trophy. The reception of the contest in its first year was good, said Mr. Thomson, but it should be even better as producers have everything to gain and nothing to lose by participating. In addition to the humanitarian angle there is also the important one that accident insurance now costs the average producer from 10 to 15 cents per cubic yard of concrete produced, and safety measures can cut this considerably. There is also, he said, a growing opposition to truck mixers by the public and in some areas threats have been made to rule them off the streets.

In the first contest, said Mr. Thomson, 82 companies were entered, producting a total of over 6,000,000 cu. yd., and forming 25 percent of the membership and 40 percent of total membership production. During the year there were 250 lost-time accidents, 48 non-employee accidents, and 984 cases involving only property damage. In spite of the many hazards this is a high man-hour-loss ratio and can be considerably improved.

### Report on Truck Chassis

Harry F. Thomson, chairman of the association's Committee on Truck Chassis, reported some significant facts established by returns from a questionnaire concerned with truck loading practices in the industry. For 2-axle equipment returns indicated an average ratio of 1.25 between average gross weights and manufacturers' ratings. In the case of 3-axle equipment the average ratio was 1.20. The maximum overload reported was 153 percent, and 75 percent of the producers who replied indicated overloads in excess of 15 percent.

Mr. Thomson pointed out that ultimately most cities will adopt the same load limits as those which apply in the states in which they are located. For this reason, he believes, producers of ready-mixed concrete should take an interest in the question of state limits even though they do not operate their equipment on state highways.

In Mr. Thomson's opinion the industry must also pay closer attention to manufacturers' ratings with respect to loading, for many of the chassis troubles are directly attributable to overloading. He disclosed that the committee proposes in the near future to hold a joint conference with the larger truck manufac-

• Harry F. Thomson presents one of the safety awards in the association's first competition. Winning companies in the two classes were the Frank J. Knight Co., Centerline, Mich. (large plant class) and the Grand Junction Materials Co., Inc., Grand Junction, Colo. (small plant class). The bronze plaques were donated by Pit and Quarry.

• Two members of Pit and Quarry's editorial staff spent an enjoyable evening as guests of Art Avril and his coast-to-coast Sakrete organization. Upper row: C. W. Mussett, G. H. Riehl, J. C. Joyce, Albert Cummins, William M. Avery, W. E. Mussett. Lower row: Walter E. Trauffer, A. C. Avril, F. J. Cloud, Robert F. Porter.

turers to discuss the entire subject of chassis designs, weights and load ratings.

### Correct Application of Motor Trucks

The next speaker, R. Cass of the White Motor Company, echoed Mr. Thomson's sentiments in regard to overloading equipment. From every point of view, he stated, misapplication is a costly business, and the selection of inadequate models poses problems that cannot be solved at any later time in respect to that particular equipment.

Mr. Cass stressed the importance of analyzing *all* of the many service factors before selecting any particular make or model of motor truck. He mentioned some of the specific data which are pertinent to the problem, such as required pay load, weight of mixer, state load limit, proportion of time off highway, maximum length and percentage of grade and number and length of trips to be made daily. In this connection reference was made to a printed form, obtainable from the White Motor Co., for submitting information to be used as the basis for determining horsepower, number of wheels, length of wheelbase and class of service. The speaker used a number of slides to outline the subject matter covered in his recently published book entitled *Correct Application of Motor Trucks.*

### Open Forum

In the open forum discussion which followed several producers gave conflicting reports on the loss of air incurred with non-agitating equipment. Alexander Foster of the Warner Company said that losses of 1 to 1½ percent had been noted between mixer and job for various lengths of haul. A Milwaukee producer, however, stated that his company has incurred no losses in hauls ranging up to five miles. Mr. Walker pointed out that in losing 2 or 3 percent of air there is an equal loss in yield, and that this constitutes a legitimate cause for customer complaints.

Accuracy of batching came in for brief discussion, with J. F. Barbee making the point that present equipment is probably entirely adequate to insure accurate control. Failure to keep such equipment clean and in good working order was cited as an important factor in reducing accuracy.

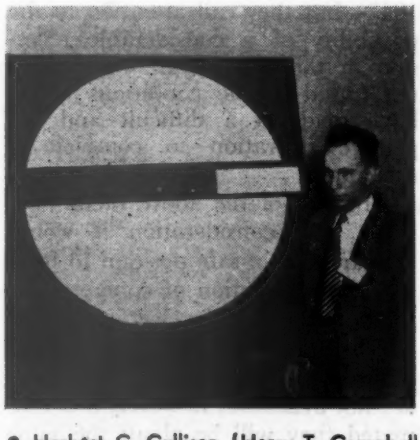
The overall performance of commercial testing laboratories received rather sharp criticism from several producers. One mentioned variations of as much as 1,000 p.s.i. when two laboratories made compressive strength determinations on the same series of cylinders. Another referred to carelessness in obtaining concrete for test cylinders, and mentioned specifically an instance in which concrete was removed from the forms for this purpose.

### Forum on Specifications and Production

Stanton Walker led off an informal round table discussion on specifications and production problems by briefly reviewing the history of the ready-mix industry. He referred to the first truck mixer patents filed by Stephen Stepanian in 1916, and the first commercial operation which followed somewhat later in the same year.

According to Mr. Walker, the first formal specifications were prepared in 1930 by a committee of the American Concrete Institute. In 1932 the task of specification writing was taken over by the A.S.T.M., and in 1933 that organization published the forerunner of the present specifications. All but four of the states now have specifications for ready-mixed concrete, Mr. Walker said in pointing out the wide variations in certain requirements which producers must meet. Particular reference was made to the range of limits applying to time of haul, with eleven states specifying a limit of 1½ hours, eleven of 1 hour, seven of 45 minutes, seven of 30 minutes, three with no limitation but requiring that mixing be done at the site, and twelve setting a maximum limit between loads. In addition, Mr. Walker said, twelve states now require the use of revolution counters, and six require the use of a locking device to assure adequate mixing.

In regard to the recently (1947) revised A.S.T.M. specification, the speaker pointed out that the principal change involves provision for the use of non-agitating haulage equipment. A restrictive clause in the new specification permits the use of non-agitating equipment only when specific provision for such use is made in the contract. It also requires that discharge be completed within a period of 45 minutes after water is added; this compares with an allowance of 90 minutes in the case of agitating equipment.



• Herbert C. Cullison (Harry T. Campbell Sons Corp., Towson, Md.) with a wheel-type chart which he developed to facilitate correction for moisture present in sand. For a detailed description of the chart, see text.

Mr. Walker made mention of a wheel-type chart developed by Harry T. Campbell Sons Corp. to facilitate accurate batching with correction for moisture present in the aggregates. Weights on the chart are set up for batches ranging from ¼ to 2½ cu. yds., and each segment represents a given moisture content in the sand (see illustration). Entering the chart with known moisture content, cement factor and size of batch, direct readings show the required weights of cement and sand and gravel, and the additional water required in gallons.

### Ready-Mix in Highways

J. F. Barbee, engineer for the Ohio State Highway Department, discussed some of the problems involved in using ready-mixed concrete for highway construction. One of the most serious difficulties, he said, is the rather long period of time (up to two hours) required to effect changes in the mix. Another important consideration is the effect of long-continued mixing on entrained air. According to Mr. Barbee, the amount of entrained air increases for the first 20 minutes of mixing, but there is a definite loss of air after this period. He stated that 2½ or 3 times as much vinsol resin is required for one hour of continuous mixing as is necessary for a 15-minute haul to obtain comparable results. On long hauls there is some sentiment favoring the use of admixtures in preference to materials which are interground with the cement.

Mr. Barbee pointed out that ready-mixed concrete has been found especially helpful in carrying on highway maintenance work. He mentioned also that the State of Ohio has undertaken a research project to determine the utility of hauling in non-agitating equipment. He sees at least a possibility that approval of the method may encourage contractors to mix and haul their own concrete, thus by-passing the established producers of ready-mixed concrete.

# The Concrete Masonry Industry In 1948—A Preview

FORECASTING the scale of activity in the concrete masonry unit field in 1948 is dubious business. We all know that the stage is all set for a continuance of the high rate of production attained in 1946 and 1947. We have a long line of customers waiting in line at the box office. Shelter is needed in unprecedented numbers; manufacturers of all types of commodities require new buildings to house new, streamlined production facilities whereby maximum cost economy may be effected; a tremendous number of new school buildings are needed to house students in all categories of education; public institutions to care for the wards of the federal, state, county and local governments call for complete overhauling, requiring new structures on a very large scale. The people who put up the money to pay for these projects and for others, such as new store buildings, hotels, structures needed by all types of transportation and many other branches of our national economy are the long line of customers making up the audience waiting for their turn to see the show. Up to now we have not mentioned the farm market, which in itself comprises a vast market for structures.

**By E. W. DIENHART**
Executive Secretary
National Concrete Masonry Association

The show has had a good run for the past two years with capacity audiences, standing room only for some and a long waiting line for others. There are rumblings of dissatisfaction among the standees and in the waiting line. They say that some of the actors are bad and that the cast needs reshuffling. Objections are heard to the length of time required to complete the performance; poor quality of the performance when it is completed, the general lack of interest on the part of the actors and the lack of cooperation between the groups on the stage, behind the stage and in the orchestra pit. Above all, objections are heard to the effect that the price of the entrance fee is out of line.

Getting down to cases, we and all other important segments of the building industry have before us a potential market for our products and services which staggers the imagination. At the same time we are faced with problems which tend to hamstring an industry which through the years has operated in a comparatively smooth and efficient manner. Some of these problems are man-made, some are beyond our control and some of them are political.

With specific reference to the concrete masonry unit industry, any forecast of our scale of production must be based upon the overall volume of new building construction. All of our individual producers should prominently bear in mind the fact that we are now in the position of being more vulnerable to the effects of the ups-and-downs of total building volume than at any other time in the recent past. This fact is bound to be true because the tremendous expansion of our plant facilities during and after the war has resulted in a production level so high that our product is 'way out in front as compared with other structural masonry materials. There was a time when through extraordinary effort an individual manufacturer could land a contract for a single project which might keep his plant in production for six months or longer but with our plants of today this situation is no longer true. Our principal concern of the present is that we conduct our enterprises to the end that we can maintain our present position in the industry. In so far as prospects for the general level of building activity are concerned, producers of concrete masonry units can find encouragement from the fact that most of the agencies specializing in analyzing the potential building construction market in 1948 are optimistic and predict a volume approximately the same as 1947—but they call attention to the possibility of a considerable recession in the event that answers are not found to the conditions which have made it a difficult and expensive operation to complete a structure.

After all of the above factors are taken into consideration it would appear to be a safe position to forecast the production of concrete masonry units on a level equal to the 1946 volume—1 billion 8- by 8- by 16-in. equivalents. (Figures for 1947 are not available; however, it is estimated they will be about the same as for 1946.)

Fortunately, our product is such that it does not deteriorate with time and any possible decreases in costs for labor and raw materials would not affect costs to too great an extent; therefore, it would seem to be good business judgment to maintain production at high levels and build up sizable inventories. Each producer is sufficiently close to the market so that he may change production schedules to fit in with the developments of the important Presidential election year of 1948.

## New Type Unit

(*from page* 164)

in planning production Mr. Hinn usually figures on producing about 2,000 blocks per 8-hour shift. Part of this rather hefty scale-down, of course, stems from the normal hazards entailed in all block plant operations, but in this particular case peak production is especially difficult to maintain due to the cramped quarters. The new plant to be built in the spring will provide not only for the immediate installation of a second George block machine but for future expansion.

Bill Hinn's silent partner in the Madison venture is Dr. Clarence S. Gonstead, who owns and operates the Gonstead Clinic at nearby Mt. Horeb. Although Dr. Gonstead takes no active part in the operation of the block plant, Mr. Hinn says he is an enthusiastic booster of concrete masonry construction. In the spring the partners plan to build a demonstration home in Madison, using Redi-Furred cinder units throughout.

Among the claims made for Redi-Furred block is that the staggered air spaces stop or baffle the penetration of moisture or frost to the inside walls of buildings in which they are used, thus preventing the cold-wall and sweating conditions usually associated with unfurred concrete masonry construction. This action was strikingly demonstrated recently in one of the kiln walls at the Madison plant. Part of the wall was built with conventional units and part with Redi-Furred. After a shutdown of several days during a subzero wave only slight traces of frost were found on the Redi-Furred section of the wall, while considerable penetration was noted in the adjacent conventional wall.

If such findings are substantiated by wide experience in all climates, the new unit can scarcely fail to win a permanent place for itself in the home construction field, for seldom in modern history has there existed more urgent need for building materials which will expedite construction work and reduce costs.

# 1948 CONCRETE MANUFACTURER'S Machinery and Supply Directory for Producers of Concrete Products, Ready Mixed Concrete

## CLASSIFIED DIRECTORY

### Admixtures

Calcium Chloride Assn., 1028 Connecticut Ave., N. W., Washington, D. C.
Dewey & Almy Chemical Co., Cambridge 40, Mass.
Dow Chemical Co., Midland, Mich.
Johns-Manville, 22 E. 40th St., New York 16, N. Y.
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
The Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Pittsburgh Plate Glass Co., 5th Ave., at Bellefield, Pittsburgh 13, Pa.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Tamms Silica Co., 228 N. LaSalle St., Chicago 1, Ill.
Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago 3, Ill.

### Air Compressors

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
American Brake Shoe Co., Kellogg Div., 97 Humboldt St., Rochester 9, N. Y.
Bolinders Co., Inc., 33 Rector, New York 6, N. Y.
The Bury Compressor Co., 1300 W. 17th St., Erie, Pa.
Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
Cooper-Bessemer Corp., Mt. Vernon, O.
Curtis Pneumatic Machy., Div. Curtis Mfg. Co., 1905 Klenlen Ave., St. Louis 20, Mo.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Davey Compressor Co., Maple & Walnut Sts., Kent, O.
DeLaval Steam Turbine Co., 853 Nottingham Way, Trenton 2, N. J.
The DeVilbiss Co., 300 Phillips Ave., Toledo, O.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Gardner-Denver Co., Quincy, Ill.
Hardinge Co., Inc., 240 Arch St., York, Pa.
Hobart Bros. Co., Hobart Sq., Troy 1, O.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Jaeger Machine Co., 20 Dublin Ave., Columbus 11, O.
Kadco Corp., 36-40 11th St., L. I. City, N. Y.
E. B. Kelley Co., Farmingdale, N. J.
Le Roi Co., 1706 S. 68th St., Milwaukee 14, Wis.
Lynch Mfg. Corp., 3600 Summit St., Toledo 1, O.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
Nordberg Mfg. Co., 3073 S. Chase Ave., Milwaukee, Wis.
Novo Engine Co., 702 Porter St., Lansing, Mich.
O. K. Clutch & Machy. Co., 619 Florence St., Columbia, Pa.
Pennsylvania Pump & Compressor Co., Easton, Pa.
Quincy Compressor Co., 217 Maine St., Quincy, Ill.
Schramm, Inc., Virginia Ave., West Chester, Pa.
Sturtevant Mill Co., Harrison Sq., Boston 22, Mass.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa.
The Trane Co., La Crosse, Wis.
Western Machy. Co., 760 Folsom St., San Francisco, Calif.
Westinghouse Electric & Mfg. Co., First Natl. Bank Bldg., Pittsburgh, Pa.
Worthington Pump & Machy. Corp., Harrison, N. J.

### Air Entraining Agents

Dewey & Almy Chemical Co., Cambridge 40, Mass.
Hercules Powder Co., 946 King St., Wilmington 99, Del.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Proctor & Gamble, 1000 Gwynne Bldg., Cincinnati, O.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.

### Bag Cleaners

American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.
Ideal Commutator Dresser Co., Park & Borden Ave., Sycamore, Ill.
The Northern Blower Co., 6409 Barberton Ave., Cleveland 2, O.
Northern Conveyor Co., Janesville, Wis.
Parsons Engineering Corp., 2546 E. 79th St., Cleveland 4, O.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, O.
Sprout, Waldron & Co., Inc., Muncy, Pa.

### Batchers

Besser Mfg. Co., Alpena, Mich.
Blaw-Knox, Div. of Blaw-Knox Co., P. O. Box 1198, Pittsburgh 30, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview Ave., Columbus 7, O.
Buffalo Scale Co., Buffalo, N. Y.
Butler Bin Co., Waukesha, Wis.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Construction Machinery Co., P. O. Box 358, Waterloo, Ia.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The F. D. Cummer & Son Co., 900 Keith Bldg., Cleveland, O.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Hardy Scale Corp., Los Angeles, Calif.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Howe Scale Co., Rutland, Vt.
Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Ia.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Likens Mfg. Co., Los Angeles, Calif.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Meyer Scales, Inc., 449 Central Ave., Orange, N. J.
Noble Co., 1860 7th St., Oakland 7, Calif.
Omega Machine Co., Div. of Builders Iron Foundry, 22 Codding St., Providence 1, R. I.
Richardson Scale Co., Clifton, N. J.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
Simplicity System Co., Riverside Dr., Chattanooga, Tenn.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Willard Concrete Machy. Co., Ltd., 2906 Imperial Highway, Lynwood, Calif.

### Batching Plants

Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
Barber-Greene Co., 631 W. Park Ave., Aurora 16, Ill.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 Bruce St., Milwaukee, Wis.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita 2, Kan.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Gar-Bro Mfg. Co., Div of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
The Heltzel Steel Form & Iron Co., 1750 Thomas Road, Warren, O.
Hercules Steel Products Corp., Sherman St., Galion, O.

C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Mixermobile Mfg., 6855 N. E. Halsey St., Portland 16, Ore.
The Neff & Fry Co., Camden, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Sackrete Inc., Apple St. & Vandalia Ave., Cincinnati 23, O.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

## Belting (Rubber)

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
Boston Woven Hose & Rubber Co., Box 1071, Boston, Mass.
Carlyle Rubber Co., Inc., 62 Park Pl., New York 7, N. Y.
Chicago Belting Co., 121 N. Green St., Chicago 7, Ill.
Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, O.
The Dayton Rubber Mfg. Co., P. O. Box 1004, Dayton 1, O.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
L. H. Gilmer Co., Tacony., Philadelphia 35, Pa.
Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Pa.
The B. F. Goodrich Co., Akron, O.
The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, O.
Hamilton Rubber Corp., Empire State Bldg., New York, N. Y.
Hewitt Rubber of Buffalo, Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y.
Imperial Belting Co., 1750 S. Kilbourn, Chicago, Ill.
Main Belting Co., 1241 Carpenter St., Philadelphia 47, Pa.
Manhattan Rubber Mfg., Div. Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.
Manheim Mfg. & Belting Co., Manheim, Pa.
Mercer Rubber Co., 136 Meyer St., Hamilton Sq., N. J.
New York Rubber Corp., Empire State Bldg., New York, N. Y.
Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.
Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Pa.
Republic Rubber, Div. Lee Rubber & Tire Corp., Albert St., Youngstown 1, O.
Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.
Thermoid Co., Whitehead Rd., Trenton 6, N. J.
United States Rubber Co., 1230 6th Ave., New York 20, N. Y.
Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

## Benders, Bar or Bending Rolls for Reinforcing Steel

C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee, Wis.
Klingelhofer Machine Tool Co., 20 Prospect St., Westfield, N. J.
Quinn Wire & Iron Works, E. 12th St., Boone, Ia.

## Bin Gates

The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Pa.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel, Div. American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.
Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
Beaumont Birch Co., 1505 Race St., Philadelphia, Pa.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Pa.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Box 407, Waukesha, Wis.
Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Road, Erie, Pa.
Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
Greenville Mfg. Works, Greenville, O.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
George Haiss Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Pa.
Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York, N. Y.
Fred T. Kern Co., Box 2057, Milwaukee 1, Wis.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Maddox Foundry & Machine Works, Archer, Fla.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
McGann Mfg. Co., P. O. Box 1187, York, Pa.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Sta., Denver 17, Colo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
D. J. Murray Mfg. Co., Wausau, Wis.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
The Neff & Fry Co., Camden, O.
New Holland Mfg. Co., Mountville, Pa.
Omega Machine Co., Div. of Builders Iron Foundry, 9 Codding St., Providence 1, R. I.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Richardson Scale Co., Clifton, N. J.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Sprout, Waldron & Co., Inc., Muncy, Pa.
The Standard Metal Mfg. Co., Malinta, O.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif.
Traylor Engineering & Mfg. Co., 10th & Mill Sts., Allentown, Pa.
Universal Engineering Corp., 625 C Ave., N. W., Cedar Rapids, Ia.
Universal Road Machy. Co., 27 Emerick St., Kingston, N. Y.
Webster Mfg., Inc., Tiffin, O.
Western Machy. Co., 760 Folsom St., San Francisco, Calif.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bin Level Controls

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, O.
The Bin-Dicator Co., 14615 E. Jefferson Ave., Detroit 15, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Brown Instrument Co., 4444 Wayne Ave., Philadelphia 44, Pa.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
The Foxboro Co., Neponset St., Foxboro, Mass.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
The Hays Corp., 642 8th St., Michigan City, Ind.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

## Bin Level Indicators

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
The Bin-Dicator Co., 14615 E. Jefferson Ave., Detroit 15, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Mosher Electronic Controls, 130 W. 42nd St., New York 18, N. Y.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 450 Lexington Ave., Homer City, Pa.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bin Valves

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Butler Bin Co., Box 407, Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Cleveland Vibrator Co., 2828 Clinton Ave., W. Cleveland, O.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Lewistown Foundry & Machy. Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Noble Co., 1860 7th St., Oakland 7, Calif.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, O.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Webster Mfg., Inc., Tiffin, O.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bins and Batching Equipment

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
Besser Mfg. Co., Alpena, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, O.
Butler Bin Co., Box 407, Waukesha, Wis.
Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Continental Gin Co., Industrial Div., 4500 Los Angeles 11, Calif.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita, Kan.
Dravo Corp., Neville Island, Pittsburgh 25, Pa.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Greenville Mfg. Works, Greenville, O.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Iowa Mfg. Co., 916 16th St., N. E. Cedar Rapids, Ia.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
E. B. Kelly Co., Farmingdale, N. J.
Kirk & Blum Mfg. Co., 2838 Spring Grove Ave., Cincinnati 25, O.
Kron Div. of Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering, 4603 W. Mitchell St., Milwaukee 14, Wis
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
McNally Pittsburgh Mfg. Corp., Pittsburgh, Kan.
The Neff & Fry Co., 150 S. Main St., Camden, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Universal Engineering Corp., 625 C Ave., N. W. Cedar Rapids, Ia.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

## Blades, Masonry Saw

Champion Mfg. Co., 2028 Washington, St. Louis 3, Mo.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.
Stone Machy. Inc., 1714 N. Salina St., Syracuse, N. Y.

## Block and Brick Machines

Air-Conditioned Building Unit, 1941 Cedar Lodge Terrace, Los Angeles 26, Calif.
Air-Tamp Corp., 830 S. Columbus St., Lancaster, O.
Allied Welding & Mfg. Co., 49 Lorna Doone Blvd., Orlando, Fla.
J. W. Appley & Son, Inc., 831 9th St., N., St. Petersburg 2, Fla.
The Atlas Co., 2651 Chauteau Ave., St. Louis 3, Mo.
B & W Brick & Materials Co., 228 N. LaSalle St., Chicago, Ill.
Bay City Cast Stone Block Machy. Co., 801 S. Henry St., Bay City, Mich.
Besser Mfg. Co., Alpena, Mich.
Frank L. Blatt Sales Co., Inc., 1807 S. 2nd St., Tampa, Fla.
Brickcrete Associates, Inc., 4651 S. Division Ave., Grand Rapids, Mich.
Brickmaster, Inc., 115 Broadway, New York 6, N. Y.
Century Cement Products, 3626 Main St., San Diego 2, Calif.
George E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Concrete Block Equipment Co., Inc., 920 Central, Kansas City, Mo.
Collins Equipment and Supply Co., Box 811, Joliet, Ill.
Concrete Equipment Co., 5200 Ottawa Ave., Holland, Mich.
Concrete Pipe Machy. Co., 9th & Division St., Sioux City, Ia.
Concrete Machy. Co., Hickory, N. C.
Crawford-Dooley Industries & Sales Co., 218 S. Yale, Albuquerque, N. M.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta, Ga.
Delaware Industries, Inc., Muncie, Ind.
Dinaburg Equipment Div., Dinaburg Block Co., Inc., P. O. Box 662, Binghamton, N. Y.
Dowling Foundry Co., Savannah, Ga.
Duncan Machine Works, 1133 Story St., Boone, Ia.
W. E. Dunn Mfg. Co., 453 W. 24th St., Holland, Mich.
Economy Mfg. Co., Stone Mountain, Ga.
Edgar's Block Machine Works, Ormond, Fla.
Equipment Engineering Co., 116½ W. Main St., St. Charles, Ill.
Fabricating & Machy., Inc., 3226 5th Ave., S., Birmingham 5, Ala.
Flam Concrete Industries, 15025 Oxnard St., Van Nuys, Calif.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Florida Die Casting Foundry, 131 Kaley Ave., Orlando, Fla.
J. B. Foote Foundry Co., Fredericktown, O.
Ford Cement Block Machine Co., Cedar Falls, Ia.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Henry & Hutchinson, Inc., 215 Church St., Decatur, Ga.
Hollostone Co., Inc., 7151 Lankershim Blvd., N. Hollywood, Calif.
International Engineering, Inc., 1145 Bolander Ave., Dayton 8, O.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Kaping System, 77 W. Washington St., Chicago 2, Ill.
E. B. Kelley Co., Farmingdale, N. J.
Kent Machine Co., 113 Portage Trail, Cuyahoga Falls, O.
Kramer Products Co., Industrial St., Peoria, Ill.
Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
Leemon Engineering & Machine Co., Ludington, Mich.
The Lith-I-Bar Co., Holland Evening Sentinel Bldg., Holland, Mich.
C. M. Long Co., Box 374, Auburn, Wash.
M & M Industries, Inc., Box 156, N. Brimingham, Ala.
Maddox Foundry & Machine Works, Archer, Fla.
Magic Concrete Equipment Co., P. O. Box 219, Springfield, Mass.
Major Industries Co., Inc., P. O. Box 391, Redondo Beach, Calif.
Miles Mfg. Co., 545 Hupp St., Jackson, Mich.
Leslie C. Miller Supply Inc., Bedford, O.
Monroe Builders Supply, Monroe, Mich.
Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
Mortarless Tile Machine Co., Inc., 2623 Riverside Drive, Los Angeles, Calif.
Multiplex Concrete Machy. Co., Elmore, O.
Pentwater Machy. Co., Pentwater, Mich.

Power Equipment Construction Co., P. O. Box 472, Sarasota, Fla.
William H. Prince & Sons, 170 W. 17th St., Salt Lake City, Utah.
W. A Riddell Corp., Bucyrus, O.
Sampson Concrete Machy. Mfrs., 3626 Main St., San Diego 2, Calif.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Stearns Mfg. Co., Inc., Adrian, Mich.
Superior-Lidgerwood-Mundy Corp., Superior, Wis.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Tampers, Inc., 1530 N. Adams Peoria, Ill.
Vibra-Tamp Machy. Co., 803 McCormick St., Greensboro, N. C.
Williams Mechanical Development Co., 6151 San Fernando Rd., Glendale 1, Calif.
C. M. Wooten Co., 2717 N. Central Ave., Knoxville 17, Tenn.
John J. Yellen, Perth Amboy, N. J.

## Boilers

Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Pa.
Combustion Engineering Corp., 1315 N. Branch St., Chicago, Ill.
Cyclotherm Corp., 157 E. 157th St., Oswego, N. Y.
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
Edge Moor Iron Works, Inc., Edge Moor, Del.
Farrar & Trefts, Inc., 21 Milburn St., Buffalo 12, N. Y.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Kewanee Boiler Corp., Kewanee, Ill.
Manitowoc Engineering Works, Manitowoc, Wis.
McDermott Bros. Co., Washington St., Allentown, Pa.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave. W., Warren, Pa.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Titusville Iron Works, Div. The Struthers Wells Corp., S. Franklin St., Titusville, Pa.
The Wickes Boiler Co., 515 W. Washington Ave., Saginaw, Mich.
William Bros. Boiler & Mfg. Co., 1057 10th Ave. S. E., Minneapolis 14, Minn.

## Bucket Loaders

Athey Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.
Barber-Green Co., 631 S. Park Ave., Aurora, Ill.
Bonded Scale Co., 2166 S. 3rd, Columbus 7, O.
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Eagle Crusher Co., Inc., 900 Harding Way E., Galion, O.
Eimco Corp., P. O. Box 300, Salt Lake City 8, Utah.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
General Conveyor & Mfg. Co., 3501 Salena St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., Park Ave & 143rd St., New York 51, N. Y.
The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.
Jaeger Machine Co., 20 Dublin Ave., Columbus 11, O.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
Lessmann Mfg. Co., P. O. Box 873, Des Moines 4, Ia.
Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Pa.
M. P. McCaffrey, Inc., 2121 E. 25th St., Los Angeles 11, Calif.
Ottawa Steel Products, Inc., 1st & Walnut, Ottawa, Kan.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Truk-Loader Co., 45 Grace St., Tiffin, O.

## Buckets, Concrete

Blaw-Knox, Div. of Blaw-Knox Co., P. O. Box 1198, Pittsburgh 30, Pa.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Dravo Corp., Dravo Bldg., 300 Penn Ave., Pittsburgh, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., Warren, O.
The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Superior-Liderwood-Mundy Corp., Superior, Wis.

## Buckets, Elevators

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel Div., American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.
Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
L. Burmeister Co., 4535 W. Mitchell St., Milwaukee 4, Wis.
Chain Belt Co., 1600 Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 22, Ill.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Eagle Crusher Co., Inc., 900 Harding Way East, Galion, O.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
The Eimco Corp., P. O. Box 300, Salt Lake City 8, Utah.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, O.
The Frog, Switch & Mfg. Co., Carlisle, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Greenville Mfg. Works, Greenville, O.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
George Haiss Mfg. Co., Park Ave. & 143rd St., New York 51, N. Y.
The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Pa.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Lewistown Foundry & Machine Co., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Enginering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Maddox Foundry & Machine Works, Archer, Fla.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Manganese Steel Forge Co., Richmond & Castor Ave., Philadelphia, Pa.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
McNalley Pittsburgh Mfg. Corp., Pittsburgh, Kan.
Meckum Engineering Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
D. J. Murray Mfg. Co., Wausau, Wis.
National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, O.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. Y.
New Holland Mfg. Co., Mountville, Pa.
Omega Machine Co., Div. of Builders Iron Foundry, 9 Codding St., Providence 1, R. I.
Pettibone-Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Pa.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.
Robins Conveyors Inc., Div. of Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg., 7 Ridgeway Ave., Aurora, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
Traylor Engineering & Mfg. Co., 10th & Mill St., Allentown, Pa.
Universal Engineering Corp., 625 C Ave. N.W., Cedar Rapids, Ia.
Universal Road Machy. Co., 27 Emerick St., Kingston, N. Y.
Western Machy. Co., 760 Folsom St., San Francisco, Calif.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

# CLASSIFIED DIRECTORY

## Buggies, Concrete

Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Insley Mfg. Co., 801 N. Olney, Indianapolis 6, Ind.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
D. J. Murray Mfg. Co, Wausau, Wis.
Pressed Steel Car Co, Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Pa.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.
Sterling Wheelbarrow Co., W. Walker St., Milwaukee 14, Wis.
Whiteman Manufacturing Co., 3249 Casitas Ave., Los Angeles 26, Calif.
Worthington Pump & Machy. Co., Harrison, N. J.

## Bulk Cement Handling Equipment

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Pa.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hercules Steel Products Co., Galion, O.
Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell, Milwaukee 14, Wis.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Robins Conveyors Inc., Div. of Hewitt-Robins Inc., 270 Passaic Ave., Passaic, N. J.
Screw Conveyor Corp., 700 Hoffmann St., Hammond, Ind.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 385 Carson, Homer City, Pa.

## Bulk Cement Storage Plants

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
The Neff & Fry Co., 150 S. Main St., Camden, O.
The Nicholson Co., 10 Rockefeller Plaza, New York 20, N. Y.
Noble Co., 1860 7th St., Oakland 7, Calif.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

## Calcium Chloride

Calcium Chloride Assn., 1028 Connecticut Ave. N.W., Washington, D. C.
Columbia Alkali Corp., Div. of Pittsburgh Plate Glass Co., Barberton, O.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Nemours Bldg., Wilmington 98, Del.
Michigan Alkali Co., Ford Bldg., Detroit, Mich.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 5th Ave. at Bellefield, Pittsburgh 19, Pa.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.

## Car Pullers

Advance Car Mover, Inc., P. O. Box 536, Appleton, Wis.
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.
Appleton-Atlas Car Mover Corp., 2947 N. 30th St., Milwaukee, Wis.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Clyde Iron Works, Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Pa.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
Gifford-Wood Co., Hudson, N. Y.
Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Pa.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Ottumwa Iron Works, Main St., Ottumwa, Ia.
W. A. Riddell Corp., Bucyrus, O.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa.
Webster Mfg. Co., Inc., Tiffin, O.
Wellman Engr. Co., 7000 Central Ave., Cleveland 4, O.
Western Gear Works, 417 Ninth S., Seattle 4, Wash.
Whiting Corp., Harvey, Ill.

## Cars, Concrete Products

American Car Foundry Co., 30 Church St., New York 8, N. Y.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
Besser Mfg. Co., Alpena, Mich.
The C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver 1, Colo.
Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, O.
W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Multiplex Concrete Machy. Co., Elmore, O.
Pacific Car & Foundry Co., 4th & Factory Sts., Renton, Wash.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Pa.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Pa.
Stearns Mfg. Co., Inc., Adrian, Mich.

## Colors, Cement and Mortar

American Fluresit Co., Inc., 635 Rockdale, Cincinnati 29, O.
Binney & Smith Co., 41 E. 42nd St., New York, N. Y.
Ceresit Waterproofing Corp., 512 S. Canal St., Chicago 7, Ill.
Colorcrete Industries, Inc., 540 Ottawa Ave., Holland, Mich.
Haynes Products Co., 4007 Farnam St., Omaha 3, Nebr.
A. C. Horn Co., 43-46 10th St., Long Island City 1, N. Y.
Landers-Segal Color Co., 78 Delavan St., Brooklyn 31, N. Y .
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
George S. Mepham Corp., 2001 Lynch Ave., E. St. Louis, Ill.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
Ricketson Mineral Color Works, 229 E. Wisconsin Ave., Milwaukee, Wis.
George B. Smith Chemical Works, Maple Park, Ill.
Smith Chemical & Color Co., 55 John St., Brooklyn 1, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Tamms Silica Co., 228 N. LaSalle St., Chicago 1, Ill.
Utility Color Co., 377-99 Frelinghuysen Ave., Newark 5, N. J.
C. K. Williams & Co., 640 N. 13th St., Easton, Pa.

## Concrete Control, System, Quality

Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.

C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Mixermobile Mfg., 6855 N. E. Halsey St., Portland 16, Ore.
The Neff & Fry Co., Camden, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Sackrete Inc., Apple St. & Vandalia Ave., Cincinnati 23, O.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

## Belting (Rubber)

The American Rubber Mfg. Co., 1145 Park Ave., Oakland 8, Calif.
Boston Woven Hose & Rubber Co., Box 1071, Boston, Mass.
Carlyle Rubber Co., Inc., 62 Park Pl., New York 7, N. Y.
Chicago Belting Co., 121 N. Green St., Chicago 7, Ill.
Cincinnati Rubber Mfg. Co., Franklin Ave., Cincinnati 12, O.
The Dayton Rubber Mfg. Co., P. O. Box 1004, Dayton 1, O.
The Gates Rubber Co., 999 S. Broadway, Denver 17, Colo.
L. H. Gilmer Co., Tacony., Philadelphia 35, Pa.
Goodall Rubber Co., 5 S. 36th St., Philadelphia 4, Pa.
The B. F. Goodrich Co., Akron, O.
The Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron, O.
Hamilton Rubber Corp., Empire State Bldg., New York, N. Y.
Hewitt Rubber of Buffalo, Div. of Hewitt-Robins, Inc., 240 Kensington Ave., Buffalo 5, N. Y.
Imperial Belting Co., 1750 S. Kilbourn, Chicago, Ill.
Main Belting Co., 1241 Carpenter St., Philadelphia 47, Pa.
Manhattan Rubber Mfg., Div. Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.
Manheim Mfg. & Belting Co., Manheim, Pa.
Mercer Rubber Co., 136 Meyer St., Hamilton Sq., N. J.
New York Rubber Corp., Empire State Bldg., New York, N. Y.
Pioneer Rubber Mills, 353 Sacramento St., San Francisco 11, Calif.
Quaker Rubber Corp., Comly & Milnor Sts., Philadelphia 24, Pa.
Republic Rubber, Div. Lee Rubber & Tire Corp., Albert St., Youngstown 1, O.
Scandinavia Belting Co., 250 Central Ave., Newark 1, N. J.
Thermoid Co., Whitehead Rd., Trenton 6, N. J.
United States Rubber Co., 1230 6th Ave., New York 20, N. Y.
Victor Balata & Textile Belting Co., 53 Park Pl., New York 7, N. Y.

## Benders, Bar or Bending Rolls for Reinforcing Steel

C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee, Wis.
Klingelhofer Machine Tool Co., 20 Prospect St., Westfield, N. J.
Quinn Wire & Iron Works, E. 12th St., Boone, Ia.

## Bin Gates

The Allen-Sherman-Hoff Co., 1435 Locust St., Philadelphia 2, Pa.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel, Div. American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.
Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
Beaumont Birch Co., 1505 Race St., Philadelphia, Pa.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Pa.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Box 407, Waukesha, Wis.
Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Road, Erie, Pa.
Farrell-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
Greenville Mfg. Works, Greenville, O.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
George Haiss Mfg. Co., Inc., Park Ave. & 143rd St., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Pa.
Robert Holmes & Bros., Inc., 515 Junction Ave., Danville, Ill.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St., N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York, N. Y.
Fred T. Kern Co., Box 2057, Milwaukee 1, Wis.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Maddox Foundry & Machine Works, Archer, Fla.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
McGann Mfg. Co., P. O. Box 1187, York, Pa.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Sta., Denver 17, Colo.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
D. J. Murray Mfg. Co., Wausau, Wis.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
The Neff & Fry Co., Camden, O.
New Holland Mfg. Co., Mountville, Pa.
Omega Machine Co., Div. of Builders Iron Foundry, 9 Codding St., Providence 1, R. I.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Richardson Scale Co., Clifton, N. J.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Sprout, Waldron & Co., Inc., Muncy, Pa.
The Standard Metal Mfg. Co., Malinta, O.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif.
Traylor Engineering & Mfg. Co., 10th & Mill Sts., Allentown, Pa.
Universal Engineering Corp., 625 C Ave., N. W., Cedar Rapids, Ia.
Universal Road Machy. Co., 27 Emerick St., Kingston, N. Y.
Webster Mfg., Inc., Tiffin, O.
Western Machy. Co., 760 Folsom St., San Francisco, Calif.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bin Level Controls

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, O.
The Bin-Dicator Co., 14615 E. Jefferson Ave., Detroit 15, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Brown Instrument Co., 4444 Wayne Ave., Philadelphia 44, Pa.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
The Foxboro Co., Neponset St., Foxboro, Mass.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
The Hays Corp., 642 8th St., Michigan City, Ind.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

## Bin Level Indicators

The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
The Bin-Dicator Co., 14615 E. Jefferson Ave., Detroit 15, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.

The Ducon Co., 259 Norman Ave., Brooklyn 22, N. Y.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Mosher Electronic Controls, 130 W. 42nd St., New York 18, N. Y.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
Photoswitch Inc., 77 Broadway, Cambridge 42, Mass.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 450 Lexington Ave., Homer City, Pa.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bin Valves

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Butler Bin Co., Box 407, Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Cleveland Vibrator Co., 2828 Clinton Ave., W. Cleveland, O.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Farrel-Birmingham Co., Inc., Ansonia, Conn.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Lewistown Foundry & Machy. Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Noble Co., 1860 7th St., Oakland 7, Calif.
The W. W. Sly Mfg. Co., 4700 Train Ave., Cleveland 2, O.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Webster Mfg., Inc., Tiffin, O.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Bins and Batching Equipment

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
Besser Mfg. Co., Alpena, Mich.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, O.
Butler Bin Co., Box 407, Waukesha, Wis.
Cement Mill Equipment Co., 9718 Otsego Ave., Detroit, Mich.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Continental Gin Co., Industrial Div., 4500 Los Angeles 11, Calif.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita, Kan.
Dravo Corp., Neville Island, Pittsburgh 25, Pa.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Greenville Mfg. Works, Greenville, O.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Iowa Mfg. Co., 916 16th St., N. E. Cedar Rapids, Ia.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
E. B. Kelly Co., Farmingdale, N. J.
Kirk & Blum Mfg. Co., 2838 Spring Grove Ave., Cincinnati 25, O.
Kron Div. of Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering, 4603 W. Mitchell St., Milwaukee 14, Wis
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
McNally Pittsburgh Mfg. Corp., Pittsburgh, Kan.
The Neff & Fry Co., 150 S. Main St., Camden, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Pacific Car & Foundry Co., Factory St., Renton, Wash.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Simplicity System Co., Riverside Dr., Chattanooga 6, Tenn.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Universal Engineering Corp., 625 C Ave., N. W. Cedar Rapids, Ia.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

## Blades, Masonry Saw

Champion Mfg. Co., 2028 Washington, St. Louis 3, Mo.
Clipper Mfg. Co., 2800 Warwick, Kansas City 8, Mo.
Stone Machy. Inc., 1714 N. Salina St., Syracuse, N. Y.

## Block and Brick Machines

Air-Conditioned Building Unit, 1941 Cedar Lodge Terrace, Los Angeles 26, Calif.
Air-Tamp Corp., 830 S. Columbus St., Lancaster, O.
Allied Welding & Mfg. Co., 49 Lorna Doone Blvd., Orlando, Fla.
J. W. Appley & Son, Inc., 831 9th St., N., St. Petersburg 2, Fla.
The Atlas Co., 2651 Chauteau Ave., St. Louis 3, Mo.
B & W Brick & Materials Co., 228 N. LaSalle St., Chicago, Ill.
Bay City Cast Stone Block Machy. Co., 801 S. Henry St., Bay City, Mich.
Besser Mfg. Co., Alpena, Mich.
Frank I. Blatt Sales Co., Inc., 1807 S. 2nd St., Tampa, Fla.
Brickcrete Associates, Inc., 4651 S. Division Ave., Grand Rapids, Mich.
Brickmaster, Inc., 115 Broadway, New York 6, N. Y.
Century Cement Products, 3626 Main St., San Diego 2, Calif.
George E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Concrete Block Equipment Co., Inc., 920 Central, Kansas City, Mo.
Collins Equipment and Supply Co., Box 811, Joliet, Ill.
Concrete Equipment Co., 5200 Ottawa Ave., Holland, Mich.
Concrete Pipe Machy. Co., 9th & Division St., Sioux City, Ia.
Concrete Machy. Co., Hickory, N. C.
Crawford-Dooley Industries & Sales Co., 218 S. Yale, Albuquerque, N. M.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta, Ga.
Delaware Industries, Inc., Muncie, Ind.
Dinaburg Equipment Div., Dinaburg Block Co., Inc., P. O. Box 662, Binghamton, N. Y.
Dowling Foundry Co., Savannah, Ga.
Duncan Machine Works, 1133 Story St., Boone, Ia.
W. E. Dunn Mfg. Co., 453 W. 24th St., Holland, Mich.
Economy Mfg. Co., Stone Mountain, Ga.
Edgar's Block Machine Works, Ormond, Fla.
Equipment Engineering Co., 116½ W. Main St., St. Charles, Ill.
Fabricating & Machy., Inc., 3226 5th Ave., S., Birmingham 5, Ala.
Flam Concrete Industries, 15025 Oxnard St., Van Nuys, Calif.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Florida Die Casting Foundry, 131 Kaley Ave., Orlando, Fla.
J. B. Foote Foundry Co., Fredericktown, O.
Ford Cement Block Machine Co., Cedar Falls, Ia.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Henry & Hutchinson, Inc., 215 Church St., Decatur, Ga.
Hollostone Co., Inc., 7151 Lankershim Blvd., N. Hollywood, Calif.
International Engineering, Inc., 1145 Bolander Ave., Dayton 8, O.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Kaping System, 77 W. Washington St., Chicago 2, Ill.
E. B. Kelley Co., Farmingdale, N. J.
Kent Machine Co., 113 Portage Trail, Cuyahoga Falls, O.
Kramer Products Co., Industrial St., Peoria, Ill.
Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
Leemon Engineering & Machine Co., Ludington, Mich.
The Lith-I-Bar Co., Holland Evening Sentinel Bldg., Holland, Mich.
C. M. Long Co., Box 374, Auburn, Wash.
M & M Industries, Inc., Box 156, N. Brimingham, Ala.
Maddox Foundry & Machine Works, Archer, Fla.
Magic Concrete Equipment Co., P. O. Box 219, Springfield, Mass.
Major Industries Co., Inc., P. O. Box 391, Redondo Beach, Calif.
Miles Mfg. Co., 545 Hupp St., Jackson, Mich.
Leslie C. Miller Supply Inc., Bedford, O.
Monroe Builders Supply, Monroe, Mich.
Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
Mortarless Tile Machine Co., Inc., 2623 Riverside Drive, Los Angeles, Calif.
Multiplex Concrete Machy. Co., Elmore, O.
Pentwater Machy. Co., Pentwater, Mich.

Power Equipment Construction Co., P. O. Box 472, Sarasota, Fla.
William H. Prince & Sons, 170 W. 17th St., Salt Lake City, Utah.
W. A Riddell Corp., Bucyrus, O.
Sampson Concrete Machy. Mfrs., 3626 Main St., San Diego 2, Calif.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Stearns Mfg. Co., Inc., Adrian, Mich.
Superior-Lidgerwood-Mundy Corp., Superior, Wis.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Tampers, Inc., 1530 N. Adams Peoria, Ill.
Vibra-Tamp Machy. Co., 803 McCormick St., Greensboro, N. C.
Williams Mechanical Development Co., 6151 San Fernando Rd., Glendale 1, Calif.
C. M. Wooten Co., 2717 N. Central Ave., Knoxville 17, Tenn.
John J. Yellen, Perth Amboy, N. J.

## Boilers

Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Pa.
Combustion Engineering Corp., 1315 N. Branch St., Chicago, Ill.
Cyclotherm Corp., 157 E. 157th St., Oswego, N. Y.
The Dorr Co., 570 Lexington Ave., New York 22, N. Y.
Edge Moor Iron Works, Inc., Edge Moor, Del.
Farrar & Trefts, Inc., 21 Milburn St., Buffalo 12, N. Y.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Kewanee Boiler Corp., Kewanee, Ill.
Manitowoc Engineering Works, Manitowoc, Wis.
McDermott Bros. Co., Washington St., Allentown, Pa.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
Straub Mfg. Co., 507 Chestnut, Oakland 7, Calif.
Struthers Wells Corp., 1003 Pennsylvania Ave. W., Warren, Pa.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Titusville Iron Works, Div. The Struthers Wells Corp., S. Franklin St., Titusville, Pa.
The Wickes Boiler Co., 515 W. Washington Ave., Saginaw, Mich.
William Bros. Boiler & Mfg. Co., 1057 10th Ave. S. E., Minneapolis 14, Minn.

## Bucket Loaders

Athey Truss Wheel Co., 5631 W. 65th St., Chicago 38, Ill.
Barber-Green Co., 631 S. Park Ave., Aurora, Ill.
Bonded Scale Co., 2166 S. 3rd, Columbus 7, O.
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Eagle Crusher Co., Inc., 900 Harding Way E., Galion, O.
Eimco Corp., P. O. Box 300, Salt Lake City 8, Utah.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
General Conveyor & Mfg. Co., 3501 Salena St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., Park Ave & 143rd St., New York 51, N. Y.
The Frank G. Hough Co., E. Sunnyside Ave., Libertyville, Ill.
Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.
Jaeger Machine Co., 20 Dublin Ave., Columbus 11, O.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
Lessmann Mfg. Co., P. O. Box 873, Des Moines 4, Ia.
Link-Belt Co., 2045 W. Hunting Park Ave., Philadelphia 40, Pa.
M. P. McCaffrey, Inc., 2121 E. 25th St., Los Angeles 11, Calif.
Ottawa Steel Products, Inc., 1st & Walnut, Ottawa, Kan.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Truk-Loader Co., 45 Grace St., Tiffin, O.

## Buckets, Concrete

Blaw-Knox, Div. of Blaw-Knox Co., P. O. Box 1198, Pittsburgh 30, Pa.
Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
Dravo Corp., Dravo Bldg., 300 Penn Ave., Pittsburgh, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., Warren, O.
The C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Superior-Liderwood-Mundy Corp., Superior, Wis.

## Buckets, Elevators

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel Div., American Brake Shoe Co., 377 E. 14th St., Chicago Heights, Ill.
Austin-Western Co., 601, Farnsworth Ave., Aurora, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
L. Burmeister Co., 4535 W. Mitchell St., Milwaukee 4, Wis.
Chain Belt Co., 1600 Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 22, Ill.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Eagle Crusher Co., Inc., 900 Harding Way East, Galion, O.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
The Eimco Corp., P. O. Box 300, Salt Lake City 8, Utah.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Farrell-Cheek Steel Co., P. O. Box 721, Sandusky, O.
The Frog, Switch & Mfg. Co., Carlisle, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Greenville Mfg. Works, Greenville, O.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
George Haiss Mfg. Co., Park Ave. & 143rd St., New York 51, N. Y.
The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hendrick Mfg. Co., 39 Dundaff St., Carbondale, Pa.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Lewistown Foundry & Machine Co., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Enginering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Maddox Foundry & Machine Works, Archer, Fla.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Manganese Steel Forge Co., Richmond & Castor Ave., Philadelphia, Pa.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
McNalley Pittsburgh Mfg. Corp., Pittsburgh, Kan.
Meckum Engineering Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
D. J. Murray Mfg. Co., Wausau, Wis.
National Malleable and Steel Castings Co., 10600 Quincy Ave., Cleveland, O.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. Y.
New Holland Mfg. Co., Mountville, Pa.
Omega Machine Co., Div. of Builders Iron Foundry, 9 Codding St., Providence 1, R. I.
Pettibone-Mulliken Corp., 4710 W. Division St., Chicago 51, Ill.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Pa.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.
Robins Conveyors Inc., Div. of Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg., 7 Ridgeway Ave., Aurora, Ill.
Taylor-Wharton Iron & Steel Co., High Bridge, N. J.
Traylor Engineering & Mfg. Co., 10th & Mill St., Allentown, Pa.
Universal Engineering Corp., 625 C Ave. N.W., Cedar Rapids, Ia.
Universal Road Machy. Co., 27 Emerick St., Kingston, N. Y.
Western Machy. Co., 760 Folsom St., San Francisco, Calif.
Williams Patent Crusher & Pulverizer Co., 2701 N. Broadway, St. Louis 6, Mo.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

## Buggies, Concrete

Construction Machy. Co., P. O. Box 358, Waterloo, Ia.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Insley Mfg. Co., 801 N. Olney, Indianapolis 6, Ind.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
D. J. Murray Mfg. Co, Wausau, Wis.
Pressed Steel Car Co, Inc., 2500 Koppers Bldg., 436 7th Ave., Pittsburgh 30, Pa.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.
Sterling Wheelbarrow Co., W. Walker St., Milwaukee 14, Wis.
Whiteman Manufacturing Co., 3249 Casitas Ave., Los Angeles 26, Calif.
Worthington Pump & Machy. Co., Harrison, N. J.

## Bulk Cement Handling Equipment

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Beaumont Birch Co., 1505 Race St., Philadelphia 2, Pa.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hercules Steel Products Co., Galion, O.
Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell, Milwaukee 14, Wis.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Robins Conveyors Inc., Div. of Hewitt-Robins Inc., 270 Passaic Ave., Passaic, N. J.
Screw Conveyor Corp., 700 Hoffmann St., Hammond, Ind.
F. L. Smidth & Co., 11 W. 42nd St., New York 17, N. Y.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 385 Carson, Homer City, Pa.

## Bulk Cement Storage Plants

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
The Neff & Fry Co., 150 S. Main St., Camden, O.
The Nicholson Co., 10 Rockefeller Plaza, New York 20, N. Y.
Noble Co., 1860 7th St., Oakland 7, Calif.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

## Calcium Chloride

Calcium Chloride Assn., 1028 Connecticut Ave. N.W., Washington, D. C.
Columbia Alkali Corp., Div. of Pittsburgh Plate Glass Co., Barberton, O.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Nemours Bldg., Wilmington 98, Del.
Michigan Alkali Co., Ford Bldg., Detroit, Mich.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 5th Ave. at Bellefield, Pittsburgh 19, Pa.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.

## Car Pullers

Advance Car Mover, Inc., P. O. Box 536, Appleton, Wis.
American Hoist & Derrick Co., 63 S. Robert St., St. Paul 1, Minn.
Appleton-Atlas Car Mover Corp., 2947 N. 30th St., Milwaukee, Wis.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Clyde Iron Works, Inc., 29th Ave. W. & Michigan St., Duluth 1, Minn.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dobbie Foundry & Machine Co., 146-170 Portage Rd., Niagara Falls, N. Y.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Electro Lift, Inc., 30 Church St., New York 7, N. Y.
L. B. Foster Co., P. O. Box 1647, Pittsburgh 30, Pa.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
Gifford-Wood Co., Hudson, N. Y.
Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
The Industrial Products Co., 2705 N. Fourth St., Philadelphia 33, Pa.
The Jeffrey Mfg. Co., 938-99 N. 4th St., Columbus 16, O.
W. A. Jones Foundry & Machine Co., 4401 Roosevelt Rd., Chicago 24, Ill.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
McKiernan-Terry Corp., 505 Manor Ave., Harrison, N. J.
Ottumwa Iron Works, Main St., Ottumwa, Ia.
W. A. Riddell Corp., Bucyrus, O.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Sullivan Div., Joy Mfg. Co., Oliver Bldg., Pittsburgh 22, Pa.
Webster Mfg. Co., Inc., Tiffin, O.
Wellman Engr. Co., 7000 Central Ave., Cleveland 4, O.
Western Gear Works, 417 Ninth S., Seattle 4, Wash.
Whiting Corp., Harvey, Ill.

## Cars, Concrete Products

American Car Foundry Co., 30 Church St., New York 8, N. Y.
The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
Besser Mfg. Co., Alpena, Mich.
The C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver 1, Colo.
Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, O.
W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Multiplex Concrete Machy. Co., Elmore, O.
Pacific Car & Foundry Co., 4th & Factory Sts., Renton, Wash.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh 22, Pa.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Pa.
Stearns Mfg. Co., Inc., Adrian, Mich.

## Colors, Cement and Mortar

American Fluresit Co., Inc., 635 Rockdale, Cincinnati 29, O.
Binney & Smith Co., 41 E. 42nd St., New York, N. Y.
Ceresit Waterproofing Corp., 512 S. Canal St., Chicago 7, Ill.
Colorcrete Industries, Inc., 540 Ottawa Ave., Holland, Mich.
Haynes Products Co., 4007 Farnam St., Omaha 3, Nebr.
A. C. Horn Co., 43-46 10th St., Long Island City 1, N. Y.
Landers-Segal Color Co., 78 Delavan St., Brooklyn 31, N. Y .
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
George S. Mepham Corp., 2001 Lynch Ave., E. St. Louis, Ill.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
Ricketson Mineral Color Works, 229 E. Wisconsin Ave., Milwaukee, Wis.
George B. Smith Chemical Works, Maple Park, Ill.
Smith Chemical & Color Co., 55 John St., Brooklyn 1, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Tamms Silica Co., 228 N. LaSalle St., Chicago 1, Ill.
Utility Color Co., 377-99 Frelinghuysen Ave., Newark 5, N. J.
C. K. Williams & Co., 640 N. 13th St., Easton, Pa.

## Concrete Control, System, Quality

Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.

# CLASSIFIED DIRECTORY

## Conveyors, Belt

Allied Welding & Mfg. Co., Inc., 49 Lorna Doone Blvd., Orlando, Fla.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Conveyor Co., 1115 W. Adams St., Chicago 7, Ill.
Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
Alpha Tank & Sheet Metal Mfg. Co., 5001
Athey Products Corp., 5631 W. 65th St., Chicago 38, Ill.
Atlas Conveyor Co., 15th St., Clintonville, Wis.
Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
Beaumont-Birch Co., 1505 Race St., Philadelphia, Pa.
Frank I. Blatt Sales Co., Inc., 1807 S. 2nd, Tampa, Fla.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Belleview Ave., Columbus 7, O.
The Burch Corp., Crestline, O.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler, N. Arlington, N. J.
The Columbus Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dodge Mfg. Corp., 500 S. Union St., Mishawaka, Ind.
Eagle Crusher Co., Inc., 900 Harding Way, E. Galion, O.
Edgar's Block Machine Works, Ormond, Fla.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
Equipment Engineering Co., St. Charles, Ill.
Fabricating & Machy., Inc., 3226 5th Ave. S., Birmingham 5, Ala.
A. B. Farquhar Co., Ltd. (Portable Machinery Div.), N. Duke St., York, Pa.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Fuller Company, 120 S. LaSalle St., Chicago, Ill.
General Conveyor & Mfg. Co., 3501 Salena St., St. Louis 18, Mo.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
Goodall Rubber Co., 5 S. 36th St., Philadelphia, Pa.
Goodman Mfg. Co., 4834 S. Halsted, Chicago 9, Ill.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Greenville Mfg. Works, Greenville, O.
Groch Engineering Co., 628 W. 9th St., Los Angeles 15, Calif.
Gruendler Crusher & Pulverizer Co., 2915-17 N. Market St., St. Louis, Mo.
George Haiss Mfg. Co., Inc., Park Ave & 143rd St., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O .Box 71, Champaign, Ill.
E. B. Kelly Co., Farmingdale, N. J.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Kent Machine Co., Cuyahoga Falls, O.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
M & M Industries, Inc., 3919 N. 27th St., Birmingham 7, Ala.
The Manhattan Rubber Mfg. Co., Div. of Raybestos-Manhattan, Inc., 61 Willett St., Passaic, N. J.
E. F. Marsh Engineering Co., 4030 Chateau Ave., St. Louis 10, Mo.
Material Movement Industries, 310 S. Michigan Ave., Chicago 4, Ill.
Mathews Conveyor Co., 10th St., Ellwood City, Pa.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
McNally Pittsburg Mfg. Corp., Pittsburg, Kan.
Meckum Engineering, Inc., 53 W. Jackson Blvd., Chicago 4, Ill.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
Multiplex Concrete Machy. Co., Elmore, O.
D. J. Murray Mfg. Co., Wausau, Wis.
National Steel Products Co., 1611 Crystal Ave., Kansas City 3, Mo.
N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
New Holland Machine Co., 100 Franklin St., New Holland, Pa.
Noble Co., 1860 7th St., Oakland 7, Calif.
Palmer Bee Co., Detroit, Mich.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.
W. A. Riddell Corp., Warren St., Bucyrus, O.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Screw Conveyor Corp., Hammond, Ind.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Superior Metal Products, Inc., 1819 S. Branson St., Marion, Ind.
Triangle Engineering, 2948 W. 26th St., Chicago, Ill.
Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
Universal Engineering Corp., 625 C Ave., N. W. Cedar Rapids, Ia.
Universal Road Machy. Co., 27 Emerick St., Kingston, N. Y.
Webster Mfg., Inc., Tiffin, O.
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp., 361 Del. Ave., Buffalo 2, N. Y.
Williams Mechanical Development Co., 6151 San Fernando Rd., Glendale 1, Calif.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Conveyors, Portable

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Conveyor Co., 1115 W. Adams St., Chicago 7, Ill.
Anderson Engineering Co., 19-21 Charles St., Cambridge 41, Mass.
Atlas Conveyor Co., 15th St., Clintonville, Wis.
Austin-Western Co., 601 Farnsworth Ave., Aurora, Ill.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview Ave., Columbus 7, O.
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville 3, Tenn.
The Burch Corp., Crestline, O.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Coyle & Roth Co., Inc., 3024 S. E. 4th St., Minneapolis 14, Minn.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Eagle Crusher Co., Inc., 900 Harding Way, E. Galion, O.
Equipment Engineering Co., 116½ W. Main St., St. Charles, Ill.
A. B. Farquhar Co., Ltd. Portable Machinery Div., N. Duke St., York, Pa.
Farrel-Bacon Co., Singer Bldg., 149 Broadway, New York, N. Y.
General Conveyor & Mfg. Co., Inc., 3501 Salena St., St. Louis 18, Mo.
Godfrey Conveyor Co., 13th & Wolf, Elkhart, Ind.
George Haiss Mfg. Co., Inc., Park Ave & 143rd St., New York 51, N. Y.
Hercules Steel Products Co., Galion, O.
Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.
Iowa Mfg. Co., 916 16th St. N. E., Cedar Rapids, Ia.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
Kennedy-Van Saun Mfg. & Engineering Co., 2 Park Ave., New York 16, N. Y.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Material Movement Industries, 310 S. Michigan Ave., Chicago 4, Ill.
Mathews Conveyor Co., 10th St., Ellwood City, Pa.
N. P. Nelson Iron Works, Inc., 820 Bloomfield Ave., Clifton, N. J.
New Holland Mfg. Co., Mountville, Pa.
Noble Co., 1860 7th St., Oakland 7, Calif.
Pioneer Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Smith Engineering Works, 532 E. Capitol Dr., Milwaukee 12, Wis.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Trowbridge Conveyor Co., 750 Van Houten Ave., Clifton, N. J.
Universal Engineering Corp., 625 C Ave N. W., Cedar Rapids, Ia.
Willard Concrete Machy. Co. Ltd., 2906 Imperial Hwy., Lynwood, Calif.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Conveyors, Screw

Allen Cone & Machy. Corp., 120 Broadway, New York 5, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
American Manganese Steel Div., 377 E. 14th St., Chicago Heights, Ill.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Bethlehem Foundry & Machine Co., 225 W. 2nd St., Bethlehem, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Brady Conveyors Corp., Chicago, Ill.
L. Burmeister Co., 4535 W. Mitchell St., Milwaukee 4, Wis.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Chicago Steel Foundry Co., 3720 S. Kedzie Ave., Chicago 32, Ill.
The Columbus Conveyor Co., 869 W. Goodale St., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Denver Equipment Co., P. O. Box 5268, Denver 17, Colo.
Eagle Iron Works, 129 Holcomb Ave., Des Moines, Ia.
The J. B. Ehrsam & Sons Mfg. Co., Enterprise, Kan.
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
Gifford-Wood Co., Hudson, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
R. R. Howell Co., P. O. Box 264, Minneapolis, Minn.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill
Kennedy-Van Saun Mfg. & Eng. Co., 2 Park Ave., New York 16, N. Y.
Lewistown Foundry & Machine Co., 16 Elizabeth St., Lewistown, Pa.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Pa.
Link-Belt Co., 2410 W. 18th St., Chicago 8, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
The McNally-Pittsburg Mfg. Corp., Pittsburg, Kan.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
D. J. Murray Mfg. Co., Wausau, Wis.
Noble Co., 1860 7th St., Oakland 7, Calif.
Screw Conveyor Corp., 700 Hoffman St., Hammond, Ind.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.
Webster Mfg., Inc., Tiffin, O.
Wisconsin Foundry & Machine Co., 623 E. Main St., Madison 1, Wis.

## Curing Accelerator, for Kilns

Campion Engineering, 9084 Alpine Ave., Detroit 4, Mich.

## Curing Agents

American Fluresit Co., 635 Rockdale Ave., Cincinnati 29, O.
Anti-Hydro Waterproofing Co., 265 Badger Ave., Newark 8, N. J.
Carter-Waters Corp., 2440 Pennway, Kansas City 8, Mo.
Ceresit Waterproofing Corp., 512 S. Canal St., Chicago 7, Ill.
Columbia Alkali Corp., Div. of Pittsburgh Plate Glass Co., Barberton, O.
Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge 40, Mass.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Nemours Bldg., Wilmington 98, Del.
Harshaw Chemical Co., Cleveland, O.
Haynes Products Co., 4007 Farnam St., Omaha, Neb.
A. C. Horn Co., 43-36 10th St., Long Island City 1, N. Y.
Johnson-March Corp., 52 Vanderbilt Ave., New York 17, N. Y.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Michigan Alkali Co., Ford Bldg., Detroit, Mich.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Truscon Laboratories, Inc., 1640 Caniff Ave., Detroit 11, Mich.

## Curing Equipment

The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, O.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Machy. Co., Elmore, O.
Truscon Laboratories, Inc., 1640 Caniff Ave., Detroit 11, Mich.

## Cutters, Bar

C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee, Wis.
Klingelhofer Machine Tool Co., 20 Prospect St., Westfield, N. J.

## Dispersing Agents

American Fluresit Co., Inc., 635 Rockdale, Cincinnati 29, O.
Dewey & Almy Chemical Co., 62 Whittemore Ave., Cambridge, Mass.
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Reardon Industries, 2837 Stanton Ave., Cincinnati 6, O.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.

## Elevators, Bulk Cement

Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N., Arlington, N. J.
Continental Gin Co., Industrial Div., 4500 5th Ave. S., Birmingham, Ala.
Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fuller Co., Fuller Bldg., Catasauqua, Pa.
General Conveyor & Mfg. Co., 3601 Salena St., St. Louis 18, Mo.
George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Corp., 2 Park Ave., New York 16, N. Y.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
New Holland Machine Co., 100 Franklin St., New Holland, Pa.
Noble Co., 1860 7th St., Oakland 7, Calif.
Screw Conveyor Co., 700 Hoffman St., Hammond, Ind.
Sprout, Waldron & Co., Inc., Muncy, Pa.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sturtevant Mill Co., 103 Clayton St., Dorchester, Boston 22, Mass.
Webster Mfg., Inc., Tiffin, O.

## Flooring Systems

American Fluresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, O.
Cities Fuel & Supply Co., 6639 W. National Ave., West Allis 14, Wis.
Flexicore Co., Inc., 220 E. 42nd St., New York, N. Y.

## Forms, Burial Vault

American Vault Co., 579 Kennelworth Ave., Detroit, Mich.
The Ashland Vault, Inc., 114 7th St., Ashland, O.
Automatic Sealing Vault Co., Peru, Ind.
Berg Vault Co., Equipment Div., 1620 Lucas Hunt Blvd., St. Louis, Mo.
Doswell-Kover, 1821 Howell St., Fort Wayne 3, Ind.
Wilbert W. Haase Co., 1005 Troost Ave., Forest Park, Ill.
Norwalk Mold Co., Wooster St., Norwalk, O.
Norwalk Vault Co., Woodlawn Ave., Norwalk, O.
Richmond Burial Vault Co., 2081 Richmond Terrace, Port Richmond, L. I., N. Y.
Safety Vault Co., 1700 Urbana Rd., Cleveland 12, O.
Sterling Concrete Vault Co., 5400 Northwest Highway, Chicago, Ill.
Wm. E. Whited, Oak Hill Memorial Park, Escondido, Calif.

## Forms, Cribbing

Price Bros. Co., Box 825, Dayton, O.

## Forms, Curb and Gutter

Binghamton Metal Forms, Inc., 15-21 Griswold St., Binghamton, N. Y.
Blaw-Knox Co., Pittsburgh, Pa.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Heltzel Steel Form & Iron Co., Thomas Rd., Warren, O.
Kirk & Blum Mfg. Co., 2838 Spring Grove Ave., Cincinnati 25, O.

# CLASSIFIED DIRECTORY

## Forms, Flat Slab

Baker-Roos, Inc., 602 W. McCarty St., Indianapolis 6, Ind.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.

## Forms, Floor and Roof Slab

Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Poston Brick & Concrete Products Co., 2600 S. Grand Ave., E., Springfield, Ill.
Price Brothers Co., 1932 E. Monument Ave., Dayton 1, Ohio.

## Forms, Garbage Receptacle

Currier's Enterprises, 4303 San Fernando Rd., Glendale 4, Calif.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.

## Forms, Garden Furniture

W. E. Dunn Mfg. Co., Holland, Mich.
Multiplex Concrete Machinery Co., Elmore, Ohio.

## Forms, Joist

Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Kirk & Blum Mfg. Co., 2838 Spring Grove Ave., Cincinnati 25, O.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.

## Forms, Manhole Cover and Frame

Geo. E. Christopher & Son Iron Works, Inc., P. O. Box 610, Wichita 1, Kan.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Helmick Foundry-Machine Co., Lock Drawer 71, Fairmont, W. Va.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Pacific Car & Foundry Co., 4th & Factory St., Renton, Wash.

## Forms, Ornamental Concrete

Art Concrete Works, 340 S. Fair Oaks Ave., Pasadena, Calif.
Bethlehem Steel Co., Bethlehem, Pa.
Colorcrete Industries, Inc., 510 Ottawa Ave., Holland, Mich.
W. E. Dunn Mfg. Co., Holland, Mich.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hollostone Co., N. Hollywood, Calif.
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, O.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Multiplex Concrete Machinery Co., Elmore, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Quinn Wire & Iron Works, E. 12th St., Boone, Iowa.
Joseph T. Ryerson & Son, Inc., P. O. Box 8000, Chicago 80, Ill.
William Bros. Boiler & Mfg. Co., 1057 10th Ave., S. F. Minneapolis 14, Minn.
Wilson Systems of Prefabrication, 253 S. Hoover St., Los Angeles 4, Calif.

## Forms, Pipe

Concrete Equipment Co., 520 Ottawa Ave., Holland, Mich.
Concrete Forms Corp., 49 Conant St., Irvington, N. Y.
Concrete Pipe Machy. Co., 9th & Division Sts., Sioux City 9, Ia.
Continental Concrete Pipe & Equipment Co., 1039 W. Goodale Blvd., Columbus, O.
W. E. Dunn Mfg. Co., 453 W. 24th St., Holland, Mich.
Electric Tamper & Equipment Co., 200 W. Ludington Ave., Ludington, Mich.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Lock Joint Pipe Co., 150 Rutledge Ave., East Orange, N. J.
Martin Iron Works, P. O. Box 2857, Terminal Annex, Los Angeles, Calif.
Quinn Wire & Iron Works, Boone, Ia.
Sherman Concrete Pipe Co., Knoxville, Tenn.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Concrete Pipe Co., 297 S. High St., Columbus 15, O.
Williamette Iron & Steel Corp., 2860 N. W. Front Ave., Portland, Ore.
Zeidler Concrete Products Machy. Co., Newell & Mobile Sts., Waterloo, Ia.

## Forms, Septic Tank

Ashland Vault Inc., 114 7th St., Ashland, O.
Automatic Septic Tank Co., Galion, O.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Unit System Septic Tanks Co., Orego, Ill.

## Forms, Step

Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, O.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
Multiplex Concrete Machy. Co., Elmore, O.

## Forms, Well Curbing

Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, Ohio.
McLanahan & Stone Corp., 200 Wall St., Hollidaysburg, Pa.
Quinn Wire & Iron Works, E. 12th St., Boone, Iowa.

## Guns, Color Spray

Colorcrete Industries, Inc., 510 Ottawa Ave., Holland, Mich.
Spray Engineering Co., 114 Central St., Somerville 45, Mass.
Spray-O-Bond Co., 2225 N. Humboldt Ave., Milwaukee, Wis.

## Gun, Grout and Caulking

Calbar Paint & Varnish Co., 2612-26 N. Martha St., Philadelphia 25, Pa.
The Clark Co., P. O. Box 226, Des Moines, Ia.
Construction Machy. Co., Waterloo, Ia.
Goodall Rubber Co., Whitehead Rd., Trenton 4, N. J.
Ransome Machy. Co., Dunellen, N. J.
Worthington Pump & Machy. Co., Construction Equipment Div. Office, 37 Appleton St., Holyoke, Mass.

## Hardening Agents

American Fluresit Co., Inc., 635 Rockdale Ave., Cincinnati 29, O.
Anti-Hydro Waterproofing Co., 265 Badger Ave., Newark 8, N. J.
Ceresit Waterproofing Corp., 512 S. Canal St., Chicago 7, Ill.
Columbia Alkali Corp., Div. of Pittsburgh Plate Glass Co., Barberton, O.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Nemours Bldg., Wilmington 98, Del.
Haynes Products Co., 4007 Farnam St., Omaha 3, Nebr.
A. C. Horn Co., 43-36 10th St., L. I. City 1, N. Y.
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
Masters Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Michigan Alkali Co., Ford Bldg., Detroit, Mich.
Reardon Industries, Inc., 2837 Stanton Ave., Cincinnati 6, O.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Stonhard Co., 401 N. Broad St., Philadelphia, Pa.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Tamms Silica Co., 228 N. La Salle St., Chicago 1, Ill.
Wilbur & Williams Co., Park Square Bldg., Boston 16, Mass.

## Heaters, Concrete Mixers

Aeroil Burner Co., Inc., 13th St. & Park Ave., West New York, N. J.
Hauck Mfg. Co., 126 10th St., Brooklyn 15, N. Y.
Littleford Bros., Inc., 460 E. Pearl St., Cincinnati, O.
The MacLeod Co., 2232-40 Bogen St., Cincinnati 22, O.
Marvel Equipment Co., 224 S. Michigan, Chicago, Ill.

## Hoisting Equipment, Concrete

Lidgerwood Mfg. Co., 7 Dey St., New York, N. Y.
Mixermobile Mfrs., 6855 N. E. Halsey St., Portland 16, Oregon.

## Hoppers

Allied Welding & Mfg. Co., 49 Lorna Doone Blvd., Orlando, Fla.
Alpha Tank & Sheet Metal Mfg. Co., 5001 S. 38th St., St. Louis 16, Mo.
J. W. Appley & Son, P. O. Box 849, Sta. A, St. Petersburg 2, Fla.
Barber-Greene Co., 631 W. Park Ave., Aurora, Ill.
Bethlehem Steel Corp., 701 E. 3rd St., Bethlehem, Pa.
Frank I. Blatt Sales Co., Inc., 1807 S. 2nd Ave., Tampa, Fla.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Concrete Transport Mixer Co., 650 Rosedale Ave., St. Louis 12, Mo.

Construction Machy. Co., Glenwood & Vinton Sts., Waterloo, Ia.
Continental Gin Co., Industrial Div., 4500 5th Ave., S., Birmingham, Ala.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Diamond Iron Works, Inc., 1728 N. 2nd St., Minneapolis 11, Minn.
Dravo Corp., Neville Island, Pittsburgh 25, Pa.
Edgar's Block Machine Works, 240 W. Grand Ave., Ormond, Fla.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Gruendler Crusher & Pulverizer Co., St. Louis, Mo.
George Haiss Mfg. Co., Inc., 391 Canal Pl., New York 51, N. Y.
The Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hendrick Mfg. Co., 52 Dundaff St., Carbondale, Pa.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
Iowa Mfg. Co., N. E. Cedar Rapids, Ia.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, O.
Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Kennedy-Van Saun Mfg. & Engineering Co., 2 Park Ave., New York 16, N. Y.
The Kirk & Blum Mfg. Co., 3807 Spring Grove Ave., Cincinnati 25, O.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Wks., 4603 W. Mitchell St., Milwaukee 14, Wis.
M & M Industries, Inc., 3919 N. 27th St., N., Birmingham 7, Ala.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Morrow Mfg. Co., 722 E. 10th St., Wellston, O.
Multiplex Concrete Machy. Co., Elmore, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Pioneering Engineering Works, Inc., 1515 Central Ave., Minneapolis 13, Minn.
Ransome Machy. Co., Dunellen, N. J.
Robins Conveyors Inc., Div. Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Standard Steel Corp., 5001 Boyle St., Los Angeles 11, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Traylor Engineering & Mfg. Co., Allentown, Pa.
Universal Engineering Corp., 625 C Ave., W. Cedar Rapids, Ia.
Wisconsin Foundry & Machine Co., 623 E. Main, Madison 1, Wis.

## Joist and Slab Machines

Besser Mfg. Co., Alpena, Mich.
W. E. Dunn Mfg. Co., 23 W. 24th St., Holland, Mich.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
The Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, O.
The Lith-I-Bar Co., Holland Evening Sentinel Bldg., Holland, Mich.
Multiplex Concrete Machy. Co., Elmore, O.

## Kilns, Curing Concrete

Hardinge Co., Inc., 240 Arch St., York, Pa.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Pa.
Victor J. Nelson Engineering & Construction Co., 1321 Riverside Dr., Burbank, Calif.
F. L. Smidth & Co., 11 W. 42nd St., New York 18, N. Y.

## Lift Trucks

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
Automatic Transportation Co., 101 W. 87th St., Chicago, Ill.
The Baker-Raulang Co., Baker Industrial Truck Div., 2168 W. 25th St., Cleveland 13, O.
Barrett-Cravens Co., 3255 W. 30th St., Chicago 23, Ill.
Frank I. Blatt Sales Co., Inc., Tampa, Fla.
Clark Tructractor Div., Clark Equipment Co., Battle Creek, Mich.
Roy Darden Industries, Inc., 313 Bona Allen Bldg., St. Louis 9, Mo.
Easton Car & Construction Co., Box 270, Easton, Pa.
The Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland 14, O.
Erickson Special Equipment Mfg. Co., 1401 Marshall St., N.E. Minneapolis 13, Minn.
Gar Wood Industries, Inc., 7924 Reopelle St., Detroit 11, Mich.
Henneuse Engineering Co., 400 Monroe St., Marion, O.
Hughes-Keenan Co., 621 Newman St., Mansfield, O.
Hyster Co., 2902 N. E. Clackamas St., Portland 8, Ore.
Lewis-Shepard Sales Corp., Watertown, Mass.
Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, O.
Market Forge Co., 133 Garvey St., Everett 49, Mass.
Miles Mfg. Co., 54507 Hupp Ave., Jackson, Mich.
Milwaukee Power Equipment Co., 525 N. 22nd St., Milwaukee 3, Wis.
Mixermobile Mfrs., 6855 N. E. Halsey St., Portland 16, Ore.
Multiplex Concrete Machy. Co., Elmore, O.
Powers Equipment Mfg. Co., 512 Monroe St., Anoka, Minn.
R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.
Ross Carrier Co., 250 Miller St., Benton Harbor, Mich.
Salsbury Motors, Inc., 1201 Lexington, Pomona, Calif.
Service Caster & Truck Corp., 110 S. Superior St., Albion, Mich.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Towmotor Corp., 1226 E. 142nd St., Cleveland 10, O.
Truck-Man, Inc., 1410 W. Ganson, Jackson, Mich.
West Bend Equipment Corp., West Bend, Wis.
The Yale & Towne Mfg. Co., 4530 Tacony St., Phladelphia 24, Pa.

## Lightweight Aggregates

### Celocrete

Celotex Corp., Celocrete Div., 120 S. LaSalle St., Chicago, Ill.
Celotex Corp., Celocrete Div., Birmingham, Ala.
Celotex Corp., Celocrete Div., South Chicago, Ill.
Celotex Corp., Celocrete Div., Buffalo, N. Y.
Celotex Corp., Celocrete Div., Cleveland, Ohio.
Celotex Corp., Celocrete Div., Pittsburgh, Pa.

### Diatomite

Chick Bed Co., Cedar Rapids, Ia.

### Formed Slag

Bethlehem Steel Co., Sparrow Point, Md.

### Haydite

John H. Black Co., Jewettville, N. Y.
Otto Buehner & Co., Salt Lake City, Utah.
The Carter-Waters Corp., Kansas City, Mo.
Hydraulic Press Brick Co., E. St. Louis, Ill.
Hydraulic Press Brick Co., South Park, O.
McNear Brick Co., McNear, Calif.
Washington Haydite and Concrete Products Co., Bothell, Wash.
Western Brick Co., Danville, Ill.

### Obsidian

Continental Basic Materials Corp., Chula Vista, Calif.
Wilson Research Engineering & Exploration Co., Veyo, Utah (Washington County).

### Perlite

Alexite Engineering Co., Colorado Springs, Colo.
Chemi-Cote Perlite Corp., Phoenix, Ariz.
Great Lakes Carbon Corp., Los Angeles, Calif.
National Perlite Corp., Campbell, Calif.
Perlite Corp. of America, Chula Vista, Calif.
Perlite Div., Dant & Russell, Inc., St. Helens, Ore.
Ryolex Corp., Yucca, Ariz.
Superlite Corp., Phoenix, Ariz.
Wilson Research, Engineering & Exploration Co., Veyo (Washington County), Utah.

### Pumice

Basalt Rock Co., Inc., Napa, Calif.
Buehner Cinder Block Co., Salt Lake City, Utah.
California Industrial Minerals Co., Friant, Calif.
California Pumice Aggregate, Friant, Calif.
Calsilco Corp., Mojave, Calif.
Clark Concrete Construction Corp., Idaho Falls, Ida.
Dodson Mfg. Co., Inc., Wichita, Kan.
Fouch & Son, Tionesta, Calif.
Glass Mt. Volcolite Co., Tionesta, Calif.
Hill Bros. Chemical Co., Los Angeles, Calif.
Insulating Aggregates Co., Laws, Calif.
Insulpum Corp., Kern County, Calif.
Jamieson Pumice, Bigpine, Calif. (Inyo County).
Kelly Products Co., Dallas, Tex.
Klamath Concrete Pipe Co., Klamath Falls, Ore.
Klamath Concrete Pipe Co., Ainshea Butte (Tionesta), Calif.
LaRue Axtell Pumice Co., Eustis, Nebr.
Pacific Coast Pumice Co., Laws, Calif.
Pacific Pumice Material Co., Fresno, Calif.
Puma-Stone Corp., Santa Fe, N. M.

The Pumice Corp. of America, Grants, N. M.
The Pumicite Co., Fowler, Kan.
Pumicrete Products Co., Madera County, Calif.
Pyro Stop Plaster Co., Napa, Calif.
Siskiyou Pumice Quarry, Macdoel (Siskiyou Co.), Calif.
Sonora Marble Aggregates Co., Chinese Station, Calif.
Tru-Mix Concrete Co., Ainshea Butte (Tionesta), Calif.
Lloyd A. Williamson, Bend, Ore.

### Rocklite

Rocklite Company, Ventura, Calif.

### Slaglite

Cleveland Slag Co., Cleveland, O.

### Slag, Pit Run

Tennessee Products Corp., Lyle, Tenn.
Tennessee Products Corp., Rockwood, Tenn.

### Superock

Birmingham Slag Co., Ensley, Ala.

### Vermiculite

Alexite Engineering Co., Colorado Springs, Colo.
Baker-Thomas Lime & Cement Co., Phoenix, Ariz.
Bee Tree Vermiculite Mines, Inc., Tigerville, S. C.
Dodson Mfg. Co., Wichita, Kan.
Gladding, McBean & Co., Los Angeles, Calif.
Insulation Service Co., Albuquerque, N. M.
Intermountain Insulation Co., Salt Lake City, Utah.
International Vermiculite Co., Girard, Ill.
G. A. MacArthur Co., St. Paul, Minn.
Mineral Products Co., San Antonio, Tex.
B. F. Nelson Mfg. Co., Minneapolis, Minn.
Northwest Insulation Co., Spokane, Wash.
Robinson Insulation Co., Great Falls, Mont.
Southwestern Talc Co., Llano, Tex.
Universal Insulation Co., Sacramento, Calif.
Universal Zonolite Insulation Co., Blue Island, Ill.
Universal Zonolite Insulation Co., Dearborn, Mich.
Universal Zonolite Insulation Co., Albany, N. Y.
Vermiculite Products Co., Kansas City, Mo.
Vermiculite Products Co., Washington, D. C.
Vermiculite Products, Inc., Houston, Tex.
Western Mineral Products Co., Minneapolis, Minn.
Western Mineral Products Co., Omaha, Nebr.
Western Mineral Products Co., Milwaukee, Wis.
Western Vermiculite Co., Denver, Colo.
Zonolite Insulation Co., St. Louis, Mo.

### Waylite

The Waylite Co., 105 W. Madison St., Chicago, Ill.
The Waylite Co., Indiana Harbor, Ind.
The Waylite Co., Bethlehem, Pa.
The Waylite Co., Swedeland, Pa.

## Lintel Machine

Kent Machine Co., Cuyahoga Falls, O.

## Meters, Water

Builders-Providence, Inc., 9 Codding St., Providence 1, R. I.
General Electric Co., 1 River Rd., Schenectady 5, N. Y.
J. B. T. Instruments, Inc., 441 Chapel St., New Haven 8, Conn.
Moore Steam Turbine Co., Willisville, N. Y.
Neptune Meter Co., 50 W. 50th St., New York 20, N. Y.
Spangler Valve Div., Aircraft Fueling Co., Inc., 329 E. 2nd St., Los Angeles 12, Calif.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.
Wheelco Instrument Co., 847 W. Harrison St., Chicago 7, Ill.

## Meter, Sand Moisture

Valley Ready Mix Concrete Co., Harlingen, Tex.

## Mixers, Concrete

Allied Welding & Mfg. Co., 49 Lorna Doone Blvd., Orlando, Fla.
J. W. Appley & Son, P. O. Box 849, St. Petersburg 2, Fla.
Besser Mfg. Co., Alpena, Mich.
Frank I. Blatt Sales Inc., 416 Tampa St., Tampa, Fla.
Blystone Corp., Cambridge Springs, Pa.
Brickcrete Associates, Inc., 4651 S. Division Ave., Grand Rapids, Mich.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
William M. Chase, 15 Linwood Ave., Buffalo 2, N. Y.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Concrete Equipment Co., 520 Ottawa Ave., Holland, Mich.
Concrete Machy. Co., Hickory, N. C.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Construction Machy. Co., Glenwood & Vinton Sts., Waterloo, Ia.
Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga.
Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan.
W. E. Dunn Mfg. Co., Holland, Mich.
Edgar's Block Machine Works, Ormond, Fla.
Equipment Engineering Corp., St. Charles, Ill.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fabricating & Machy., Inc., 3226 5th Ave., S. Birmingham 5, Ala.
Flam Concrete Industries, 15026 Oxnard St., Van Nuys, Calif.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
The J. B. Foote Foundry Co., 283 N. Main St., Fredericktown, O.
Ford Cement Block Machine Co., Cedar Falls, Ia.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Gilson Bros. Co., Fredonia, Wis.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Hill Mfg. Co., 144 N. 4th St., Columbus 1, O.
Hollostone Co., Inc., 7151 Lankershim Blvd., N. Hollywood, Calif.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, O.
Kadco Corp., 36-40 11th St., Long Island City, N. Y.
E. B. Kelly Co., Farmingdale, N. J.
Kent Machine Co., Cuyahoga Falls, O.
Koehring Co., 3026 W. Concordia Ave., Milwaukee 10, Wis.
Kwik-Mix Co., Port Washington, Wis.
Leader Welding & Mfg. Co., 2418 6th St., Berkeley 2, Calif.
Lith-I-Bar Co., Holland, Mich.
Madsen Iron Works, Los Angeles, Calif.
The Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
M & M Industries, Inc., 3919 N. 27th St., N. Birmingham, Ala.
Mixermobile Co., Inc., 608 S. Hill St., Los Angeles, Calif.
Morris Mfg. Co., 900 Brundage, Bakersfield, Calif.
Morse Bros. Machy. Co., 2900 Broadway, Denver 1, Colo.
Multiplex Concrete Machy. Co., Elmore, O.
New Holland Machine Co., 100 Franklin St., New Holland, Pa.
H. K. Porter Co., Inc., 49th & Harrison Sts., Pittsburgh, Pa.
Power Equipment Construction Co., Sarasota, Fla.
Ransome Machy. Co., 42 Thomas St., Dunellen, N. J.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee, Wis.
Spears-Wells Machy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Stearns Mfg. Co., Adrian, Mich.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Concrete Machy. Co., Columbus 15, O.
Vibra-Tamp Machy. Co., 803 McCormick St., Greensboro, N. C.
Williams Mechanical Development Co., 6151 San Fernando Rd., Glendale 1, Calif.
C. M. Wooten Co., 2716 N. Central, Knoxville, Tenn.
Worthington Pump & Machy. Corp., Harrison, N. J.
The Yoder Co., 5500 Walworth Ave., Cleveland 2, O.

## Mixers, Concrete (Continuous)

C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Geo. C. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Hill Mfg. Co., 1144 N. 4th St., Columbus 1, O.
Kent Machine Co., Cuyahoga Falls, O.
Link Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
The Yoder Co., 5500 Walworth Ave., Cleveland 2, O.

## Mixers, Mortar

C. H. & E. Mfg. Co., 3849 N. Palmer St., Milwaukee 12, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Geo. E. Christopher & Son Iron Works, 1220 Blaine, Wichita 1, Kan.
Construction Machy. Co., Glenwood & Vinton, Waterloo, Ia.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Gilson Bros. Co., Fredonia, Wis.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, O.
Kwik-Mix Co., Port Washington, Wis.
Lasting Products Co., 200 S. Franklintown Road, Baltimore 23, Md.
Multiplex Concrete Machy. Co., Elmore, Ohio.
H. K. Porter Co., Inc., Oliver Bldg., Pittsburgh, Pa.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.

## Mixers, Truck

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Commercial Concrete Equipment Co., 1 Wolfe's Lane, Pelham 65, N. Y.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Jaeger Machine Co., 550 W. Spring St., Columbus 16, O.
Mixermobile Co., Inc., 608 S. Hill St., Los Angeles, Calif.
Ransome Machy. Co., 42 Thomas St., Dunellen, N. J.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis.
Spears-Wells Machy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Willard Concrete Machy. Co., Ltd., 2906 Imperial Highway, Lynwood, Calif.

## Mixing Plants, Central

C. O. Bartlett & Snow Co., 6194 Harvard Ave., Cleveland, O.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Commercial Concrete Equipment Co., 1 Wolf's Lane, Pelham 65, N. Y.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita 2, Kansas.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hill Mfg. Co., 144 N. 4th St., Columbus 1, Ohio.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Mixermobile Co., Inc., 608 S. Hill St., Los Angeles, Calif.
Multiplex Concrete Machy. Co., Elmore, O.
Noble Co., 1860 7th St., Oakland 7, Calif.
Ransome Machy. Corp., 42 Thomas St., Dunellen, N. J.
T. L. Smith Co., 2835 N. 32nd St., Milwaukee 10, Wis.
Spears-Wells Machy. Co., Inc., 1832 W. 9th St., Oakland 7, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.

## Mortar Spreading Machines

Rapid Mfg. Co., 21 28th St., S. W., Grand Rapids, Mich.

## Off-bearers

Besser Mfg. Co., Alpena, Michigan.
J. N. Cole Mfg. Co., Crystal Lake, Ill.
Michigan Silo Co., Peoria, Ill.
Stearns Mfg. Co., Inc., Adrian, Mich.

## Paints and Coatings, Concrete

American Cement Paint Co., Chattanooga, Tenn.
American Fluresit Co., Inc., 635 Rockdale, Cincinnati 29, O.
Anti Waterproofing Co., 265 Badger Ave., Newark 8, N. J.
Calbar Paint & Varnish Co., 2612-26 N. Market St., Philadelphia 25, Pa.
Ceresit Waterproofing Co., 512 S. Canal St., Chicago 7, Ill.
E. D. Coddington Mfg. Co., 5024 N. 37th St., Milwaukee 9, Wis.
Colorcrete Industries, Inc., 540 Ottawa Ave., Holland, Mich.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan.
E. I. du Pont de Nemours & Co., Inc., Nemours Bldg., Wilmington 98, Del.
The Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.
Goodall Rubber Co., Inc., 5 S. 36th St., Philadelphia 4, Pa.
Haynes Products Co., 4007 Farnam St., Omaha 3, Neb.
A. C. Horn Co., 43036 10th St., Long Island City 1, N. Y.
Hydrozo Waterproofing Products, 3230 University Ave., Madison 5, Wis.
Keystone Asphalt Products Co., 43 E. Ohio St., Chicago 11, Ill.
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 23, Md.
Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Material Chemical & Mfg. Co., 3617 S. May St., Chicago 9, Ill.
Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland, O.
Prima Products, Inc., Dept. P, 10 E. 40th St., New York 16, N. Y.
Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.
Ranetite Mfg. Co., 1917 S. Broadway, St. Louis 4, Mo.
Reardon Color & Chemical Works, Cincinnati, O.
Reardon Co., 2208 N. 2nd St., St. Louis, Mo.
Reardon Industries, Inc., 2837 Stanton Ave., Cincinnati 6, O.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Spray-O-Bond, 2225 N. Humboldt Ave., Milwaukee 12, Wis.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Tamms Silica Co., 228 N. LaSalle St., Chicago, Ill.
Tremec Co., 3122 Roanoke Rd., Kansas City 8, Mo.
Truscon Laboratories, Inc., Caniff & Grand Trunk RR., Detroit 11, Mich.
Tymston Studio, 2129 S. Michigan Ave., Chicago 10, Ill.
United Paint & Varnish Co., 2128 Niagara St., Buffalo, N. Y.
U. S. Gypsum Co., 300 W. Adams St., Chicago 6, Ill.
Wall Products, Inc., Foot of Centre St., Newark 2, N. J.
Wilbur & Williams Co., Park Sq. Bldg., Boston 16, Mass.

## Pallets, Steel, Wood, for Concrete Products

J. W. Appley & Son, P. O. Box 849, St. Petersburg 2, Fla.
Bassett Foundry Co., Adrian, Mich.
Besser Mfg. Co., Alpena, Mich.
Frank I. Blatt Sales Co., Inc., Tampa, Fla.
Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, O.
The Commercial Shearing & Stamping Co., Box 719, Youngstown 1, O.
Roy Darden Industries, Inc., 313 Bona Allen Bldg., Atlanta 3, Ga.
Delaware Industries, Inc., 1406 E. 18th St., Muncie, Ind.
Fabricating & Machy., Inc., 3226 5th Ave., S. Birmingham 5, Ala.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Florida Die Casting Foundry, Orlando, Fla.
F. C. George Machine Co., 100 S. Westmoreland Dr., Orlando, Fla.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
E. B. Kelly Co., Farmingdale, N. J.
Kent Machine Co., Cuyahoga Falls, O.
Kirk & Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, O.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Multiplex Concrete Machy. Co., Elmore, O.
Pallet Systems, Inc., 120 Guardian Bldg., Cleveland 14, O.
Permanent Mold Foundry Inc., 16 Sprague St., Dayton, O.
R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.
Schmeller Aluminum Foundry Co., 3300 E. 87th St., Cleveland 4, O.
Southeast Steel Sales Co., 100 W. Amelia St., Orlando, Fla.
Stearns Mfg. Co., Inc., Adrian, Mich.
Truscon Steel Co., Albert St., Youngstown 1, O.
Universal Concrete Machy. Co., 297 S. High St., Columbus 15, O.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

## Pipe Machines

Concrete Equipment Co., 520 Ottawa Ave., Holland, Mich.
Concrete Forms Corp., 69 Conant St., Irvington, N. Y.
Concrete Pipe Machy. Co., 9th & Division Sts., Sioux City, Ia.
Continental Concrete Pipe & Equipment Co., 1039 W. Goodale Blvd., Columbus, O.
W. E. Dunn Mfg. Co., 453 W. 24th St., Holland, Mich.
Electric Tamper & Equipment Co., 200 W. Ludington Ave., Ludington, Mich.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Houston Concrete Pipe Co., 116 Heights Blvd., Houston 7, Tex.
L. & W. Mfg. Co., 1550 W. San Carlos, San Jose, Calif.
Lock Joint Pipe Co., 150 Rutledge Ave., East Orange, N. J.
Martin Iron Works, 1222 E. 28th St., Los Angeles, Calif.
Quinn Wire & Iron Works, Boone, Ia.
Sherman Concrete Pipe Co., Knoxville, Tenn.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Concrete Pipe Co., 297 S. High St., Columbus 15, O.
Zeidler Concrete Products Machy. Co., Newell & Mobile Sts., Waterloo, Ia.

## Proportioning Equipment (See also Batching Equipment)

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, O.

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
The Bonnot Co., Mulbery St., Canton 2, O.
Builders-Providence, Inc., 9 Codding St., Providence 1, R. I.
Butler Bin Co., Waukesha, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Hardinge Co., Inc., 240 Arch St., York, Penn.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Hills-McCanna Co., 2349 Nelson St., Chicago 18, Ill.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., Champaign, Ill.
Kron Co., 1720 Fairfield Ave., Bridgeport 5, Conn.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Merrick Scale Mfg. Co., 180-186 Autumn St., Passaic, N. J.
Noble Co., 1860 7th St., Oakland 7, Calif.
Omega Machine Co., 9 Codding St., Providence 1, R. I.
Richardson Scale Co., Clifton, N. J.
Sackrete Inc., Apple & Vandalia Sts., Cincinnati 23, O.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Syntron Co., 450 Lexington Ave., Homer City, Pa.
Toledo Scale Co., Telegraph Rd., Toledo 12, O.

## Pumps, Concrete

Chain Belt Co., Milwaukee 4, Wis.
Worthington Pump & Machy. Co., 37 Appleton St., Holyoke, Mass.

## Racks, Curing (concrete masonry)

Besser Mfg. Co., Alpena, Mich.
Butler Bin Co., Waukesha, Wis.
The Chase Foundry & Mfg. Co., Columbus 7, O.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Erickson Special Equipment Co., 2631 Ulysses, N. E. Minneapolis, Minn.
Fleming Mfg. Co., Inc., 4985 Fyler Ave., St. Louis 9, Mo.
Bob Graveley Industries, Inc., 519 Brookhaven Dr., Orlando, Fla.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
Johnston Iron Works, 1133 Cornelia Ave., Chicago 13, Ill.
E. B. Kelley Co., Farmingdale, N. J.
Kent Machine Co., Cuyahoga Falls, O.
Kirk Blum Mfg. Co., 2807 Spring Grove Ave., Cincinnati 25, O.
M & M Industries, Inc., 3919 N. 27th St., N. Birmingham 7, Ala.
Miles Mfg. Co., 545-7 Hupp Ave., Jackson, Mich.
Moffat Steel Co., 1621 4th St., Bethlehem, Pa.
Multiplex Concrete Machy. Co., Elmore, O.
R. S. Reed Corp., E. Hoffman St., Three Rivers, Mich.
Stearns Mfg. Co., Adrian, Mich.
Woods Bros. Mfg. Co., P. O. Box 181, Oregon, Ill.

## Recorders, Concrete Batching

Hardinge Co., Inc., 240 Arch St., York, Pa.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Noble Co., 1860 7th St., Oakland 7, Calif.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
The Woodford Engineering Co., 77 W. Washington St., Chicago 2, Ill.

## Regulators, Temperature

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland 10, O.
The Bristol Co., Waterbury 91, Conn.
Brown Instrument Co., Div. of Minneapolis-Honeywell Regulator Co., 444 Wayne Ave., Philadelphia 44, Pa.
Defender Instrument & Regulator Co., 815 Clark Ave., St. Louis 2, Mo.
Economy Pumps Inc., 1000 Weller Ave., Hamilton, O.
The Foxboro Instrument Co., Neponset Ave., Foxboro, Mass.
The Hays Corp., 642 8th St., Michigan City, Ind.
O. C. Keckley Co., 400 W. Madison St., Chicago 6, Ill.
Leeds & Northrup Co., 4970 Stenton Ave., Philadelphia 44, Pa.
Manning, Maxwell & Moore, Inc., 11 Elias St., Bridgeport 2, Conn.
Staples & Pfeiffer, 528 Bryant St., San Francisco 7, Calif.
Taylor Instrument Co., 95 Ames St., Rochester, N. Y.
Wheelco Instruments Co., 847 W. Harrison St., Chicago 7, Ill.

## Reinforcing Equipment

Adjustable Clamp Co., 417 N. Ashland Ave., Chicago 22, Ill.
Ankortite Products, Inc., 2020 Broadway, Parsons, Kan.
Automatic Spring Coiling Co., 4045 W. Thorndale Ave., Chicago 20, Ill.
Baker-Roos, Inc., 602 W. McCarty St., Indianapolis 6, Ind.
Cedar Rapids Block Co., Cedar Rapids, Ia.
Dayton Sure Grip & Shore Co., 504 Kercher St., Miamisburg, O.
Kirk & Blum Mfg. Co., 2838 Spring Grove Ave., Cincinnati 25, O.
M. & M. Clamp Co., 983 17th Ave., S. E., Minneapolis 14, Minn.
Neptune Mfg. Co., 3751 Broadway Pl., Los Angeles, Calif.
Pittsburgh Steel Products Co., Pittsburgh 30, Pa.
Richmond Screw Anchor Co., 838 Liberty Ave., Brooklyn 8, N. Y.
Joseph T. Ryerson & Son, Inc., P. O. Box 8000-A, Chicago 80, Ill.
San Angelo Foundry & Machine Co., San Angelo, Tex.
Star Expansion Products Co., Inc., 147-49 Cedar St., New York 6, N. Y.
Symons Clamp & Mfg Co., 4249 Diversey Ave., Chicago 39, Ill.
Truscon Steel Co., Youngstown 1, O.
Universal Form Clamp Co., 1238 N. Kostner Ave., Chicago 51, Ill.
Wickwire Spencer Steel Co., 500 Fifth Ave., New York 18, N. Y.
Williams Form Engineering Corp., Box 925, Madison Square Station, Grand Rapids, Mich.

## Reinforcing Steel

American Steel & Wire Co., Rockefeller Bldg., Cleveland 13, O.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Carnegie Bldg., Pittsburgh 19, Pa.
Colorado Fuel & Iron Corp., P. O. Box 1920, Denver 1, Colo.
Columbia Steel Co., Russ Bldg., San Francisco 6, Calif.
Jones & Laughlin Steel Corp., 3rd Ave. & Ross St., Pittsburgh 30, Pa.
Kaiser Co., Inc., Iron & Steel Div., Latham Sq. Bldg., Oakland 12, Calif.
Norwalk Vault Co., Woodlawn Ave., Norwalk, O.
Pittsburgh Steel Co., 1600 Grant Bldg., Pittsburgh 30, Pa.
Republic Steel Corp., Republic Bldg., Cleveland 1, O.
Joseph T. Ryerson & Son, Inc., 2558 W. 16th St., Box 8000-A, Chicago 80, Ill.
Tennessee Coal, Iron & Railroad Co., Brown-Marx Bldg., Birmingham 2, Ala.
Truscon Steel Co., Albert St., Youngstown 1, O.
Union Steel Products Co., 252 N. Berrien St., Albion, Mich.
Wickwire Spencer Steel Co., 500 5th Ave., New York 18, N. Y.

## Sand-Lime Brick Machinery

Besser Mfg. Co., Alpena, Mich.
Hardinge Co., Inc., 240 Arch St., York, Pa.
International Engineering, Inc., Bolander Ave., Dayton 1, O.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
The Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver 17, Colo.
The Multiplex Concrete Machy. Co., Elmore, O.
W. A. Riddell Corp., Bucyrus, O.

## Sanders, Cast Stone

Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.

## Saws, Masonry

Carborundum Co., Perth Amboy, N. J.
Champion Mfg. Co., 2028 Washington, St. Louis 3, Mo.
Clipper Mfg. Co., 2801 Warwick, Kansas City 8, Mo.
D. J. Murray Mfg. Co., Wausau, Wis.
Stone Machinery Inc., 1714 N. Salina St., Syracuse, N. Y.

## Scales, Batching

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellevue, Columbus 7, O.
Buffalo Scale Co., Inc., 1200 Niagara St., Buffalo 13, N. Y.
Butler Bin Co., Waukesha, Wis.
Construction Machinery Co., Glenwood & Vinton, Waterloo, Ia.
The Conveyor Co., Inc., 3260 Slauson Ave., Los Angeles 11, Calif.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Merrick Scale Mfg. Co., 180-186 Autumn St., Passaic, N. J.
Meyer Scales, Inc., 440 Central Ave., Orange, N. J.
Noble Co., 1860 7th St., Oakland 7, Calif.
Richardson Scale Co., Clifton, N. J.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.

Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.
Toledo Scale Co., Telegraph Rd., Toledo 12, O.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

## Scales, Hopper

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Bonded Scale Co., 41 Bellview, Columbus 7, O.
Buffalo Scale Co., Inc., 1200 Niagara St., Buffalo 13, N. Y.
Butler Bin Co., Waukesha, Wis.
Erie Steel Const. Co., 67 Geist Rd., Erie, Pa.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Noble Co., 1860 7th St., Oakland 7, Calif.
Richardson Scale Co., Clifton, N. J.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles, Calif.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Toledo Scale Co., Telegraph Rd., Toledo 12, O.
Winslow Government Standard Scale Works, 25th & Hawthorne, Terre Haute, Ind.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

## Scales, Proportioning

Beaumont Birch Co., 1505 Race St., Philadelphia, Pa.
Bonded Scale Co., 41 Bellview, Columbus 7, O.
Buffalo Scale Co., Inc., 1200 Niagara St., Buffalo 13, N. Y.
Builders-Providence, Inc., 9 Coddng St., Providence 1, R. I.
Butler Bin Co., Box 407, Waukesha, Wis.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Howe Scale Co., Rutland, Vt.
C. S. Johnson Co, P. O. Box 71, Champaign, Ill.
Merrick Scale Mfg. Co., 180-186 Autumn St., Passaic, N. J.
Richardson Scale Co., Clifton, N. J.
Schaffer Poidometer Co., 2828 Smallman St., Pittsburgh, Pa.
Scientific Concrete Service Corp., 724 Salem Ave., Elizabeth 3, N. J.
Syntron Co., 450 Lexington Ave., Homer City, Pa.
Toledo Scale Co., Telegraph Rd., Toledo 12, Ohio.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

## Silo Stave Machines

Besser Mfg. Co., Alpena, Mich.
Fleming Mfg. Co., 4985 Fyler Ave., St. Louis 9, Mo.
Stearns Mfg Co., Inc., Adrian, Mich.

## Silos, Storage

Beaumont Birch Co., 1505 Race St., Philadelphia 2, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan.
C. S. Johnson Co., P. O Box 71, Champaign, Ill.
M. A. Long Co., 10 W. Chase St., Baltimore, Md.
MacDonald Engineering Co., 188 W. Randolph St., Chicago 1, Ill.
E. C. Machine Co., 624 Commonwealth Bldg., Allentown, Pa.
Marietta Concrete Corp., Marietta, O.
Metal Forms Corp., 3334 N. Booth St., Milwaukee, Wis.
The Neff & Fry Co., 150 S. Main St., Camden, O.
The Nicholson Co, Inc., 10 Rockefeller Plaza, New York 20, N. Y.
Noble Corp., 1860 7th St., Oakland 7, Calif.
Standard Steel Corp., 5001 Boyle St., Los Angeles 11, Calif.

## Skip Hoists

Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.
American Hoist & Derrick Co., Robert & Water Sts., St. Paul 1, Minn.
J. W. Appley & Son, P. O. Box 849, St. Petersburg 2, Fla.
The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Beaumont Birch Co., 1505 Race St., Philadelphia, Pa.
Besser Mfg. Co., Alpena, Mich.
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
C. S. Card Iron Works Co., 2501 W. 16th Ave., Denver, Colo.
Champion Line Machinery Co., 95 Schuyler Ave., N. Arlington, N. J.
The Chase Foundry & Mfg. Co., 2400 Parsons Ave., Columbus 7, O.
Clyde Iron Works, Inc., 29th Ave., W. & Michigan St., Duluth 1, Minn.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Dempster Bros., Inc., Springdale Ave., Knoxville, Tenn.
Denver Equipment Co., P. O Box 5268, Denver 17, Colo.
Dodson Mfg. Co., Inc., 1463 Barwise, Wichita 2, Kan.
Easton Car & Construction Co., Box 270, Easton, Pa.
Gar Wood Industries, Inc., 7924 Riopelle St., Detroit 11, Mich.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
W. A Jones Foundry & Machine Co., 4401 Roosevelt Rd, Chicago 24, Ill.
Lime & Hydrate Plants Co., P. O. Box 1387, York, Pa.
Link-Belt Co., 330 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
Maddox Foundry & Machine Works, Archer, Fla.
McKiernan-Terry Corp., 15 Park Row, New York 7, N. Y.
Mine & Smelter Supply Co., P. O. Box 5270, Terminal Annex, Denver, Colo.
Multiplex Concrete Machy. Co., Elmore, O.
Ottumwa Iron Works, 402 W. Main St., Ottumwa, Ia.
Pressed Steel Car Co., Inc., 2500 Koppers Bldg., Pittsburgh 30, Pa.
Robins Conveyors Inc., Div. Hewitt-Robins Inc., 270 Passaic Ave., Passaic, N. J.
Rogers Iron Works Co., 11th & Pearl, Joplin, Mo.
Sampson Concrete Machy. Mfrs., 3626 Main St., San Diego 2, Calif.
Scripps-Pearson Machine Works, P. O. Box 684, Edmonds, Wash.
Silent Hoist & Crane Co., Inc., 841-65 63rd St., Brooklyn 20, N. Y.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stearns Rogers Mfg. Co., 1718-22 California St., Denver 2, Colo.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Sterling Machy. Corp., 441 S. W. Blvd., Kansas City 10, Mo.
Street Brothers Machine Co., 415 Times Bldg., Chattanooga 2, Tenn.
Universal Concrete Machy. Co., Inc., 297 S. High St., Columbus 15, O.
Vulcan Iron Works, 700 S. Main St., Wilkes-Barre, Pa.
Webster Mfg. Inc., Tiffin, O.

## Skip Loaders

The C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland 5, O.
Beaumont Birch Co., 1505 Race St., Philadelphia Pa.
Besser Mfg. Co., Alpena, Mich.
Brooks Equipment & Mfg. Co., 408 Davenport Rd., Knoxville, Tenn.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
Champion Line Machy. Co., 95 Schuyler Ave., N. Arlington, N. J.
Dempster Bros., Inc., Springdale Ave., Knoxville, Tenn.
Insley Mfg. Co., 801 N. Olney, Indianapolis, Ind.
E. B. Kelley Co., Farmingdale, N. J.
Link-Belt Co., 300 W. Pershing Rd., Chicago 9, Ill.
Lippmann Engineering Works, 4603 W. Mitchell St., Milwaukee 14, Wis.
M. P. McCaffrey, Inc., 2121 E. 25th St., Los Angeles 11, Calif.
Stearns Mfg. Co., Inc, Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway, Aurora, Ill.
Webster Mfg. Inc., Tiffin, O.

## Stencil, Block

Geist Brothers, 3544 Ridge Rd., Cleveland 2, O.

## Testing Machines, Compressive Strength

The Black & Decker Mfg. Co., Towson 4, Md.
Yoder Co., 5500 Walworth, Cleveland, O.

## Testing Machines, Entrained Air Measurement

Central Scientific Co., 1700 W. Irving Park Blvd., Chicago, Ill.
Hogentogler & Co., 16 Oxford St., Chevy Chase 15, Md.
Robert Tarrant Mfg. Co., 329 W. Illinois St., Chicago 10, Ill.
E. W. Zimmerman, 228 N. LaSalle St., Chicago, Ill.

## Testing Machines, Sand Moisture Measurement

Valley Ready Mix Concrete Co., Harlingen, Texas.

# CLASSIFIED DIRECTORY

## Tile Machines, Drain

Besser Mfg. Co., Alpena, Mich.
Concrete Equipment Co., Holland, Mich.
Concrete Forms Corp., 49 Conant, Irvington, New York, N. Y.
Concrete Machy. Co., Hickory, N. C.
Concrete Pipe Machy. Co., Sioux City 19, Ia.
Continental Concrete Pipe & Equipment Co., 1039 W. Goodale Blvd., Columbus, O.
Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta 3, Ga.
Drain Tile Machine Co., 406 Luckie St., N. W., Atlanta, Ga.
W. E. Dunn Mfg. Co., Holland, Mich.
Electric Tamper & Equipment Co., 200 W. Ludington Ave., Ludington, Mich.
Flint & Walling Mfg. Co., Inc., Kendallville, Ind.
Lock Joint Pipe Co., 150 Rutledge Ave., E. Orange, N. J.
Martin Iron Works, 1222 E. 28th St., Los Angeles, Calif.
Multiplex Concrete Machy. Co., Elmore, O.
Quinn Wire & Iron Works, E. 12th St., Boone, Ia.
Sherman Concrete Pipe Co., Knoxville, Tenn.
R. K. Tyra Corp., P. O. Forest Lake, Tyra, Minn.
Universal Concrete Pipe Co., 297 S. High St., Columbus 15, O.
Wagoner Mfg. Co., Gibsonville, N. C.
Zeidler Concrete Products Machy. Co., Newell & Mobile Sts., Waterloo, Ia.

## Tile Machines, Roofing

E. P. Barber Co., 900 W. Valley Blvd., Bloomington, Calif.
W. E. Dunn Mfg. Co., Holland, Mich.

## Tractors, Electric

Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
Baker Industrial Div., The Baker-Raulang Co., 2152 W. 25th St., Cleveland 13, O.
Clark Equipment Co., Tructractor Div., Battle Creek, Mich.
Detroit Hoist & Machine Co., 8214 Morrow Ave., Detroit 11, Mich.
The Elwell Parker Electric Co., 4205 St. Clair Ave., Cleveland, O.
Lift Trucks, Inc., 2425 Spring Grove Ave., Cincinnati 14, O.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia 24, Pa.

## Transfer Plants, Ready Mixed Concrete

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Gar-Bro Mfg. Co., Div. of Garlinghouse Bros., 2416 E. 16th St., Los Angeles 21, Calif.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.

## Transit Concrete Mixing Plants

Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh 22, Pa.
Bodinson Mfg. Co., 2401 Bayshore Blvd., San Francisco 24, Calif.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee 4, Wis.
The Conveyor Co., Inc., 3260 E. Slauson Ave., Los Angeles 11, Calif.
The Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Madsen Iron Works, 5631 Bickett St., Huntington Park, Calif.
Noble Corp., 1860 7th St., Oakland 7, Calif.
Standard Steel Corp., 5001 S. Boyle Ave., Los Angeles 11, Calif.

## Truck Bodies, Ready-Mixed Concrete, Non-Agitating

Daybrook Hydraulic Corp., Bowling Green, O.
Hercules Steel Products Corp., Sherman St., Galion, O.
Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, O.

## Vacuum Process, Concrete Pipe

Concrete Products Co. of America, 1505 Race St., Philadelphia, Pa.

## Vibrators, Portable, Concrete

Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.
Concrete Transport Mixer Co., 4985 Fyler Ave., St. Louis 9, Mo.
Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago 6, Ill.
Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.
Kadco Corp., 36-40-11th St., Long Island City, N. Y. (Subsidiary of Complete Machy. & Equipment Co.)
Mall Tool Co., 7728 S. Chicago Ave., Chicago, Ill.
New Haven Vibrator Co., 131 Chestnut St., New Haven 7, Conn.
Stow Mfg. Co., Inc., 443 State St., Binghamton, N. Y.
Syntron Co., 450 Lexington Ave, Homer City, Pa.
Viber Company, 726 S. Flower St., Burbank, Calif.

## Waterproofing and Dampproofing

Acqua-Proof, Inc., 786 Broad St., Newark, N. J.
American Fluresit Co., Inc., 635 Rockdale, Cincinnati 29, O.
Anti-Hydro Waterproofing Co., 265 Badger Ave., Newark 8, N. J.
Calbor Paint & Varnish Co., 2612-26 N. Martha St., Philadelphia 25, Pa.
Cerasal Chemical Corp., 221 N. LaSalle St., Chicago, Ill.
Ceresit Waterproofing Corp., 512 S. Canal St., Chicago 7, Ill.
E. D. Coddington Mfg. Co., 5024 N. 37th St., Milwaukee 9, Wis.
Concrete Chemical Co., 338 Railway Exchange Bldg., Kansas City, Mo.
The Dodson Mfg. Co., Inc., 1463 Barwise Ave., Wichita 2, Kan.
W. E. Dunn Mfg. Co., 2300 Parsons Ave., Holland, Mich.
The Flintkote Co., 30 Rockefeller Pl., New York 20, N. Y.
Goodyear Tire & Rubber Co., Inc., 144 E. Market, Akron, O.
Haynes Products Co., 2007 Farnam St., Omaha 3, Neb.
A. C. Horn Co., 43-36 10th St., Long Island City 1, N. Y.
Kay-Tite Company, West Orange, N. J.
Hydrozo Products, Inc., 3230 University Ave., Madison 5, Wis.
Lasting Products Co., 200 S. Franklintown Rd., Baltimore 2, Md.
Johns Manville, 22 E. 40th St., New York 16, N. Y.
The Master Builders Co., 7016 Euclid Ave., Cleveland 3, O.
Medusa Portland Cement Co., 1000 Midland Bldg., Cleveland 15, O.
Prima Products, Inc., 10 E. 40th St., New York 16, N. Y.
Protection Products Mfg. Co., Kalamazoo, Mich.
Prufcoat Laboratories, Inc., 63 Main St., Cambridge 42, Mass.
Ranetite Mfg. Co., St. Louis, Mo.
Reardon Industries, 2837 Stanton Ave., Walnut Hill, Cincinnati 6, O.
Sackrete Inc., Apple St. & Vandalia, Cincinnati, O.
Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J.
Solvay Sales Corp., 40 Rector St., New York 6, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., New York 16, N. Y.
Spray-O-Bond, 2225 N. Humboldt Ave., Milwaukee 12, Wis.
Standard Oil Co., 225 Bush St., San Francisco 20, Calif.
Stonhard Co., 401 N. Broad St., Philadelphia, Pa.
Sullivan Co., 212 E. Trigg Ave., Memphis 2, Tenn.
Tamms Silica Co., 228 N. LaSalle St., Chicago, Ill.
Truscon Laboratories, Inc., Caniff & Grand Trunk RR., Detroit 11, Mich.
U. S. Rubber Co., 1230 6th Ave., New York 20, N. Y.
Universal Zonolite Insulation Co., 135 S. LaSalle St., Chicago, Ill.
Wall Products, Inc., Centre St., Newark 2, N. J.

## Weigh Larries

The Atlas Car & Mfg. Co., 1100 Ivanhoe Rd., Cleveland 10, O.
The C. O. Bartlett & Snow Co., 6200 Havard Ave., Cleveland 5, O.
Beaumont Birch Co., 1512 Race St., Philadelphia 2, Pa.
Butler Bin Co., Waukesha, Wis.
Chain Belt Co., 1600 W. Bruce St., Milwaukee, Wis.
The Columbus Conveyor Co., Columbus, O.
Continental Gin Co., Industrial Div., 4500 5th Ave., Birmingham, Ala.
Erie Steel Construction Co., 67 Geist Rd., Erie, Pa.
Gifford-Wood Co., Hudson, N. Y.
Heltzel Steel Form & Iron Co., 1750 Thomas Rd., Warren, O.
Howe Scale Co., Rutland, Vt.
Jackson & Church Co., 321 N. Hamilton St., Saginaw, Mich.
The Jeffrey Mfg. Co., 935-99 N. 4th St., Columbus 16, O.
C. S. Johnson Co., P. O. Box 71, Champaign, Ill.
Link-Belt Co., 320 W. Pershing Rd., Chicago 9, Ill.
Richardson Scale Co., Clifton, N. J.
Robins Conveyors Inc., Div. Hewitt Robins, Inc., 270 Passaic Ave., Passaic, N. J.
Stearns Mfg. Co., Inc., Adrian, Mich.
Stephens-Adamson Mfg. Co., 7 Ridgeway Ave., Aurora, Ill.
Toledo Scale Co., Telegraph Rd., Toledo 12, O.
Vulcan Iron Works, 730 S. Main St., Wilkes Barre, O.
Webster Mfg. Inc., Tiffin, O.
Wellman Engineering Co., 7000 Central Ave., Cleveland 4, O.
The Yale & Towne Mfg. Co., 4530 Tacony St., Philadelphia, Pa.

# NEW MACHINERY and SUPPLIES

## ● Bell-Up Machine

Introduction of a two-motor drive, with independent control of dual packer-heads is the latest development of the Concrete Pipe Machinery Company of Sioux City, Iowa, manufacturers of "McCracken" pipe machines.

This important improvement in the Model T bell-up machine gives the latest model independent r.p.m. control of the two packing elements—the packer-head,

**Two-motor drive gives independent control of both packing elements.**

which packs the barrel of the pipe, and the bell-packer, which packs the socket end. The Model T bell-up has a range of pipe sizes from 4 to 36 inches.

The change reportedly results in better bells and greatly improves the socket corner of the pipe, according to the manufacturer.

The Model T is the only dual packer-head machine made. The independent control of the dual packer-head is another in a long list of improvements for "McCracken" pipe machinery.

## ● Pipe Bend Machine

Offered by the Houston Concrete Pipe Company, 6600 Washington Avenue, Houston 7, Tex., is the Dixon pipe bend machine, used for manufacturing concrete pipe bends.

The device is a portable machine, constructed of cast iron and having a roller-chain drive of rugged construction. A two-way safety lock is provided, and the gear and chain are inside to insure maximum safety. In tests made by users, one man has made 75 four-inch quarter bends (90°), 125 four-inch eighth bends (45°), 50 six-inch quarter bends (90°), and 90 six-inch eighth bends (45°) per day.


*"M H" is MASS HANDLING—the systematic movement of the most units, in the shortest time, at the lowest cost.

You Need MH* to SAVE TIME!

FREE! Send for your copy of the "Towmotor Materials Handling Analysis Guide"—it shows you how to analyze and improve handling operations in your plant.

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REPRESENTATIVES IN PRINCIPAL CITIES

WHY BUILD A NEW PLANT when you can modernize your present handling methods and streamline production operations with Towmotor Mass Handling? Towmotor Fork Lift Trucks, Tractors and Accessories will insure the most efficient use of present production equipment, manpower and space. Learn now how a versatile Towmotor can save time by speeding up handling operations in your plant.

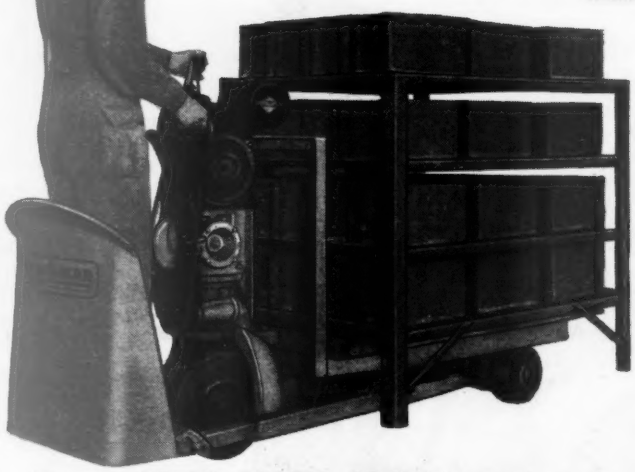
TOWMOTOR
THE ONE-MAN-GANG

Fork Lift Trucks and Tractors

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

# truck-man

## BUILT TO DO BLOCK JOBS BETTER



ASK ANY OPERATOR

**$775**

f.o.b. factory

ORDER FROM THESE BLOCK MACHINERY SPECIALISTS

Anchor Concrete Mach. Co.
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A. N. Olsen
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Blatt Sales Co.
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Clark-Wilcox Co.
Boston, Mass.

Concrete Block Plant Equip. Co.
Birmingham, Ala.

Concrete Transport Mixer Co.
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Contractors Mach. & Equip Co.
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C. H. Jones Equip. Co.
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C. J. Rahn Co.
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E. B. Kelly, Inc.
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Fleming Mfg. Co.
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F. C. George Machine Co.
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Lith-I-Bar Co.
Holland, Mich.

Llewellyn Mach. Corp.
Miami, Fla.

Monroe Concrete Block Mach. Co.
Monroe, Mich.

Sterns-Oakes Sales Co.
Adrian, Mich.

Siano & Sons
Greenfield, Mass.

Yes, for SAFER, FASTER, BETTER handling of concrete blocks—Truck-Man has what block manufacturers demand:

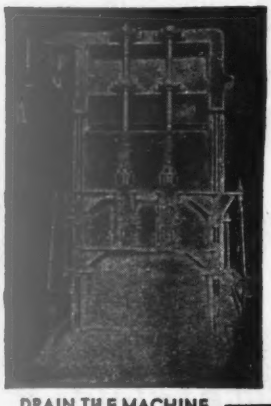
- Ample capacity—many carry over 60 blocks.
- Easy lift and drop, soft start and stop—handles green blocks gently.
- Hydraulic lift and gasoline power—ease and speed handling.
- Cat-like maneuverability possible only with 360° steering.
- Easy on-and-off, simple and safe operation by unskilled drivers.
- Low first cost, low operating cost, low maintenance cost.

Ask the Truck-Man dealer in your territory about performance, service and economy, or write us for catalog.

**truck-man INC.**

1422 West Ganson, Jackson, Mich.





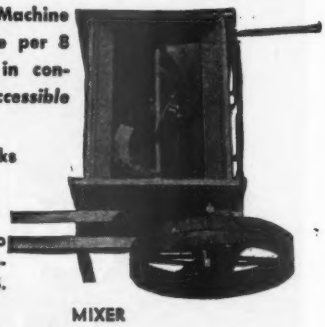
DRAIN TILE MACHINE

Write for Complete Information

## HIGH PRODUCTION—LOW INVESTMENT

**The Wooten Drain Tile Machine produces 2000 to 3000 tile per 8 hour shift. It is *rugged* in construction and *simple* and *accessible* in design. Price $685.00.**

**Delivery 2 to 5 Weeks**



MIXER

**WOOTEN MIXERS**

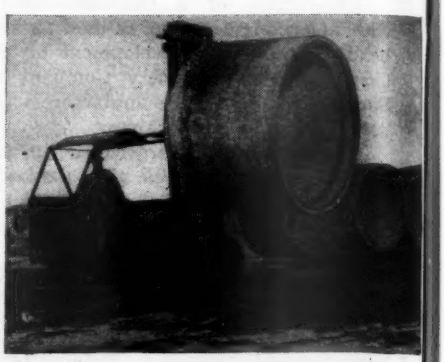
Sturdily Built in Any Size to Meet Your Production Requirements. 9 Cu. Ft. Mixer $375.

**C. M. WOOTEN CO.** • 2717 Central Ave. Knoxville, Tennessee


### ● Power Lift Truck

Erickson Trucks are now made in one platform type (for handling racks from the end) and three fork types, all equipped with new International power units.

A new model—the "Super-Special" high lift fork truck—has recently been perfected, designed especially for the handling of concrete pipe up to 84



New model handles pipe up to 84 in. in diameter.

inches in diameter. It includes such features as tilting or rigid mast, hydraulic steering, 6-cylinder International engine, new improved hoist cylinder, etc.

The other fork models are the Standard Hi-Lift and Special Hi-Lift fork types, which handle racks from the side. They are especially adaptable for handling cubes of block for stock piling, or loading of delivery trucks, as well as for handling racks of materials. All Erickson power lift trucks are custom-built.

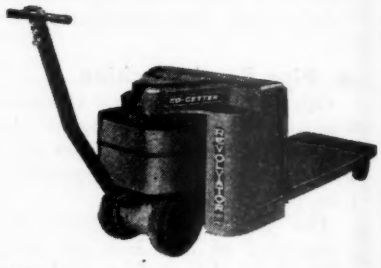
---

### ● Power Lift Truck

Now coming off the assembly line at the North Bergen, N. J., plant of Revolvator Co., is a new walk-along power lift truck which has been aptly christened the "Go-getter."

The Go-getter is completely streamlined yet all adjustments are easily accessible. It is powerful for its diminutive size—27½ inches between control handle and back of battery box, making it one of the shortest trucks of its type on the market.

The Go-getter has a modern single-package hydraulic lift unit on which all



Walk-along streamlined power lift truck.

adjustments can be made from the outside. To simplify maintenance or repairs, the hydraulic or power unit can be quickly and easily removed from the body.

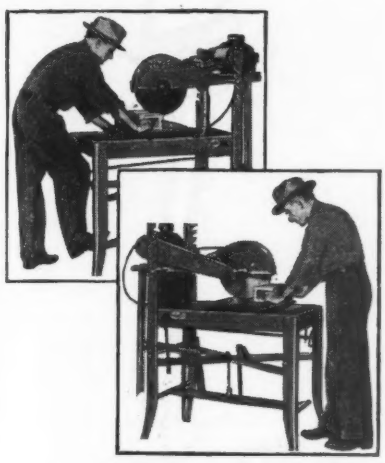
The platform truck comes in 4000- and 6000-lb. capacities; heights 7, 9 or

11 inches; lengths 36, 48, 54, 60, 72 inches and over, with 26½-in. width. The platform will raise a full 4 inches. The Go-getter operates on a 6-cell 13-plate battery which gives normal 8-hour operation. Front wheels are 12 x 3½-in. dual wheels with demountable rubber tires.

### ● Masonry Saw

Outstanding improvements have been incorporated in the Clipper Manufacturing Company's "Versa-Tile" saw for cutting brick, tile, concrete, quarry tile and fire brick. Among the new features are a dual belt drive, a snap-on blade cover, streamlined positions for instant one-man change, and fully adjustable conveyor clamps, both elevating and non-elevating types.

Improvements have been made to provide greater efficiency through the use of Clipper's "multiple cutting action,"



Saw cuts dry or wet, with or without foot pedal.

which minimizes the arc of contact and exhausts cut-away particles as soon as they are cut. This allows the blade to cut its own path. The "multiple cutting action" is said to reduce frictional heat, requires less power and keeps the blade sharp for faster cutting and longer blade life.

The Versa-Tile is designed to cut the most intricate shapes without stopping for adjustments. This new dustless Clipper masonry saw has been designated as the HD-48. One reported advantage of the Model HD is the fact that it will cut with equal ease regardless of whether used "wet" or "dry".

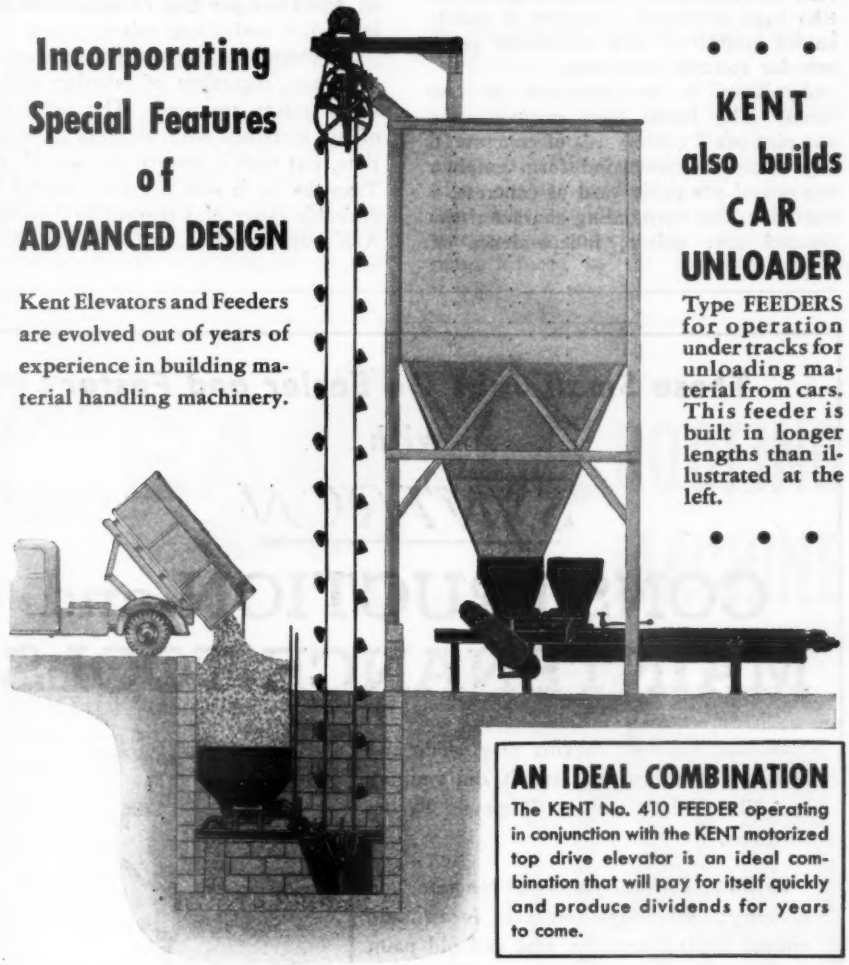
When working in closely confined areas, dust is eliminated by means of the circulating system. Water is circulated from the reservoir through a pump mounted on the cutting head. A stabilizer control is provided to permit exact depth scoring. This new model, like all Clippers, is completely portable.

New Clipper Blade specifications have also been announced. Among these is a Clipper superior blade for cutting extremely hard materials "dry", together with a complete series of specifications for "wet-cutting", including Clipper bonded diamond blades for tile, glass, marble, porcelain, etc.


KENT FEEDERS & ELEVATORS

Incorporating Special Features of ADVANCED DESIGN

Kent Elevators and Feeders are evolved out of years of experience in building material handling machinery.



• • •

KENT also builds CAR UNLOADER

Type FEEDERS for operation under tracks for unloading material from cars. This feeder is built in longer lengths than illustrated at the left.

• • •

AN IDEAL COMBINATION

The KENT No. 410 FEEDER operating in conjunction with the KENT motorized top drive elevator is an ideal combination that will pay for itself quickly and produce dividends for years to come.

No. 410
ADVANCED MODEL FEEDER

For handling sand, crushed stone, aggregate, etc. from hopper or Gondola Car.

It is driven steadily and smoothly by the elevator motor through the elevator belt. Material is continuously fed into boot by long-life rubber belt — pressure, grease lubricated anti-friction bearings — rollers support belt at intervals.

Adjustable hopper gate governs volume of material fed into elevator boot.

No. 139
KENT MOTORIZED ELEVATOR

Constructed entirely of high grade approved materials. All metal except belts.

Unit drive is by electric motor through V-belts. Shafts revolve on anti-friction pillow blocks, pressure grease lubricated.

Elevator is easily attached to bin by means of heavy channels at right angles to main members.

The KENT MACHINE COMPANY
Manufacturers of CONCRETE PRODUCTS MACHINERY Since 1925
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## ● Air Entraining Agent

The A. C. Horn Co., Inc., Long Island City, N. Y., announces the development of an air-entraining agent which is being manufactured under the trade name "Ayr-Trap". It is a result of research in their laboratories by the same specialists who have developed a number of widely known protective and decorative products for concrete structures.

Ayr-Trap is manufactured in two forms. The liquid type employs only one pint per 5 cubic yards of concrete, 6 bag mix. The powdered form employs one pound per cubic yard of concrete, 6 bag mix. The outstanding characteristics claimed are: safety; independence of sand content, slump and mixing time; and stability.

A small deviation from the proper amount, such as unavoidably occurs under field conditions, will not increase or decrease the amount of air to an extent where it can do harm. The same amount of Ayr-Trap per bag of cement is used in 4, 5, 6 and 7 bag mixes.

No changes in the specified amount are necessary, regardless of whether stiff or soupy mixes are used. The percentage of air increases with increase in mixing time, but with a proper amount of Ayr-Trap the air is said to remain within the desirable range of 3 percent to 5 percent. Ayr-Trap contains no accelerators or set correctives. Hence, the early strength of the concrete is indicative of the final strength. According to the manufacturer Ayr-Trap will not deteriorate or cake on standing.


***Those Small Jobs Go Easier and Faster with***

*SYNTRON*

**CONSTRUCTION and MAINTENANCE TOOLS**

Busting concrete, digging clay, shale and frozen ground; cutting asphalt and tamping backfill — with Gasoline Hammer Paving Breakers.

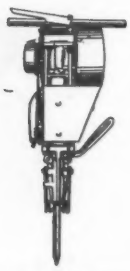
Drilling, cutting, chipping concrete and masonry; vibrating concrete forms and molds; scaling concrete, rust and old paint from equipment — with Electric Hammers.

Drilling, sanding, buffing and polishing wood and metal with Electric Drills and Sanders. Grinding welds and wire brush work with Electric Grinders.

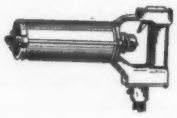
Vibrating thin wall forms; burial vault forms, pipe forms and other precast concrete products with electromagnetic Form Vibrators. Vibrating bridge decks, floor slabs, piers, etc. with flexible shaft Mass Vibrators.

Write for literature on this TIME AND COST SAVING equipment.

**SYNTRON CO.**
**385 Carson, Homer City, Pa.**



*"Gasoline Hammer"*
**PAVING BREAKERS**
100% Self Contained



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**ELECTRIC HAMMERS**

*"Portable"*
**ELECTRIC DRILLS**

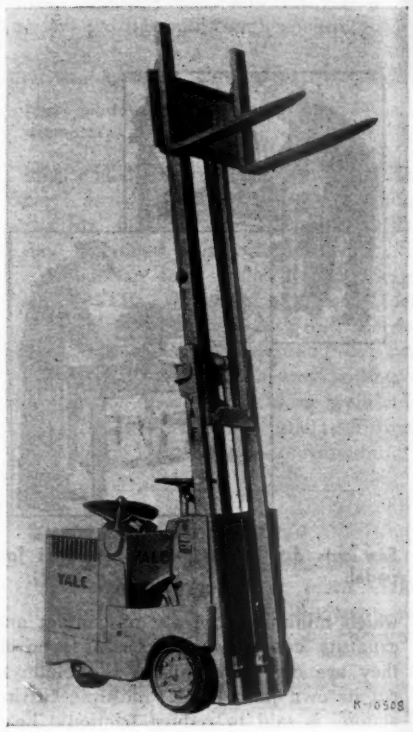
**CONCRETE VIBRATORS**

*Portable Electric*
**GRINDERS — SANDERS**


## ● Tilting Fork Truck

New light-weight low-capacity additions to the Yale & Towne line of electrict tilting-fork trucks have been announced, and are available for immediate shipment. The new 1000-, 1500- and 2000-lb. fork trucks are designed for transporting and tiering when the loads to be handled are in the above weight classifications.

Compact design and small over-all dimensions (58 in. long by 38 in. wide) make the trucks ideal for operation in congested areas—as in narrow aisles and inside freight cars and highway trucks. The light weight of the new trucks makes them desirable for use in elevators and on comparatively weak floors, area-ways, or bridges.




**High-lift truck is available in 1000-, 1500- and 2000-lb. capacities.**

The basic principles of design as found in models of more than 300-lb. capacity, are embodied in the new additions to the line. These include the tilting mast, four speeds forward and one reverse, spur-gear drive, sit-down control, and a fork-lifting height of 127 in., with an 83 in. over-all truck height.

## ● Horizontal Truck Mixer

The new Ransome 4½-yd. horizontal truck mixer has been developed to include features requested by some of the country's leading ready-mix operators. The manufacturer states that the one-compartment tank, with all the advantages of conventional two-compartment

design, allows accurate water measurement and distribution to produce uniform batches. Other features cited are anti-freeze poppet valves, high pressure pump, flat non-breakable heat-resistant water gauge windows, and short direct water lines to pump and drum.

Power and drive mechanism include two-speed transmission in both forward

One-compartment tank permits accurate water measurement and distribution.

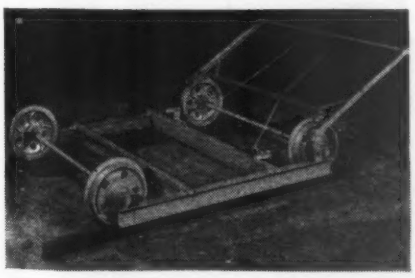
and reverse, with master clutch between engine and transmission; all sprockets, gears, and brake drum are mounted on splined shafts; the internal gear drive is on the drum for maximum tooth contact and long wear-free life.

Ransome's exclusive sectional spiral blades for fast uniform mixing, and solid heavy-section heat-treated bar-steel drum tires are a few of the many drum features. All mechanical parts on the sealing door of the 4½-yd. horizontal truck mixer are outside the drum. Ransome Machinery Company, Dunellen, New Jersey.

## ● Steel Transfer Car

The development of a new all-welded-steel transfer car has been announced by the Chase Foundry and Manufacturing Company of Columbus, Ohio. It is designed to speed up material handling where transfer cars are used, and to lengthen the life of the equipment.

The new car is made to the user's specifications and can be built to replace and interchange with present equipment.



All-welded steel transfer car.

Track gauges, length of rails on transfer car, and height from transfer track to top track may be specified in ordering this new and improved car.

Design and engineering features include patented Chase roller bearings and positive action wheel stops which are operated from the push handle.

## ● Water Repellent

Protection Products Mfg. Co., manufacturers of chemical preservatives, Kalamazoo, Michigan, have developed a colorless water repellent that penetrates masonry blocks, concrete, brick, and tile.

"Rainchek", as it has been designated by the manufacturers, guards against water seepage, the direct result of normal moisture in the ground working its way through the basement walls and through the basement floors. It protects against outside walls becoming discolored, from a driving rain or saturation from ground moisture. It helps prevent masonry disintegration which comes from moisture accumulation and then freezing, below the surface. The manufacturer also claims that the new product controls dusting of cement floors by binding together the many tiny loose particles.

For all masonry surfaces, Rainchek's practical uses include the treating of concrete silos, water tanks, boiler and elevator pits, pilings, garage floors, and other masonry construction.

## ● Concrete Forms and Ties

"Bulldog" forms and ties for concrete construction are offered by Bulldog Concrete Forms, Inc., New York, N. Y. Twenty different parts, including ties, panels (steel or plywood), outside angles, filler angles, inside corners, tee-plates, liner keys, wedges, steel alingers, liner extension bar and clip and scaffolding, are manufactured by the company. Form


*The new* BARTILE ROOFING MACHINE

*It's Different.....It's Sensational*

● The wildest storm or heaviest gale won't budge an interlocking BARTILE concrete tile roof. Light in weight, BARTILE is priced competitively with ordinary short-lived combustible roofing. Colorful, streamlined BARTILE roofing cannot warp, rot nor decay. And fireproof, waterproof, sunproof BARTILE actually improves with age!

● Like the tile it produces, the BARTILE Roofing Machine is built to endure. Its sturdy construction and easy, trouble-free operation assure you years of speedy, profitable BARTILE production.

● The BARTILE Roofing Machine is so simple to operate that one unskilled worker, after a few days training, can turn out up to 150 perfect roofing tiles per hour. Many large operators are using up to eight machines on a production-line basis for higher, economical output.

● Each BARTILE machine is sturdily engineered and carefully designed to assure long life. Low in first cost, its built-in ruggedness keeps maintenance expense low. Uniformly high-strength tile assured by positive electric-motor vibration. Precision-made steel pallets make accurate units that lay up perfectly.

BARTILE double tongue-and-groove tile interlocks perfectly. Lays up rapidly . . . requires no nails.

Get complete details NOW about this revolutionary machine that has a high pay-off for the low initial investment. Don't delay . . . write today while franchises are still available.

**E. P. BARBER CO.**
**900 West Valley Blvd.**
**Bloomington, California**

panels weigh from 16 lbs. (smallest size) to 60 lbs.

According to the manufacturer, the use of these parts makes possible a wall form that can be erected on one side complete, with liners and uprights, without first installing wall ties which will interfere with the placing of reinforcing steel. The panels may be erected vertically or horizontally, or in a combination of both, to frame walls, columns, footings, beams or slabs. The steel—and plywood-faced panels are interchangeable. Wall ties with crimped ends space the wall and lock the panels.

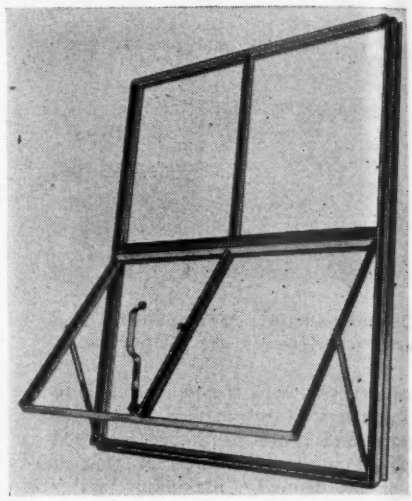
## ● Steel Window Frames

Since the permanency of concrete and concrete block structures definitely call for window sash of long-life, a line of quality-built steel windows is announced by the Kewanee Manufacturing Company, Kewanee, Ill. Their line comprises steel commercial, utility, and barn windows—as well as two types of steel basement windows.

Kewanee's commercial windows feature a center ventilating panel, opening inside, making screening easy. Vertical mullion bars are available for combining in groups.

Kewanee steel utility windows are constructed of heavy rolled sections. The top half opens inside for easy ventilation. Kewanee steel barn windows are similar in design, except that they are provided with side shields which give deflected ventilation.

For its "Master" steel basement window, Kewanee claims special construc-



Center ventilating panel swings in.

tion and design features. It is weathertight, with an exclusive controlled ventilation feature. Vents are easily removed, and both screens and storm sash are available. The Kewanee people also offer a standard basement window, competitively priced, yet embracing tight-fitting construction. This window also available in aluminum. All Kewanee windows are available in putty or puttyless glazing.

## ● Ready-Mix Admixture

"Trimix," a multipurpose concrete and mortar admixture, is offered by L. Sonneborn Sons, Inc. For best results in ready-mix, the admixture should be added to the gauging water (reduced accordingly) and the gauging water added to the dry concrete mix while agitating constantly.

For concrete mixes previously gauged Trimix is added directly while agitating. However, if the gauging water has not been corrected for the addition of Trimix, it is possible to restore the mix to its original slump by adding portland cement after Trimix has been introduced. All concrete mixes containing Trimix should be agitated for at least one minute after the addition of Trimix and should be discharged within one hour. In warm weather the mix should be discharged within one-half hour.

## ● Block Machine

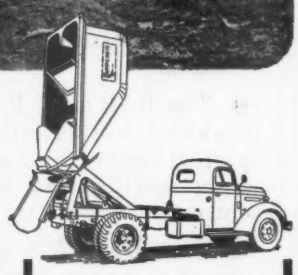
The Kramer "Pak-Crete" block machine employs the short-stroke, power-packing principle in which packing feet are directly and mechanically connected with the packing bearing shaft, operating at 1750 r.p.m. Thus a power-packing blow is delivered by one packer foot at every ¼ turn of the packer bearing shaft. Packing feet are of cast nickel steel, while the packing bearing shaft is made

"No Segregation or Bleeding," Says Christiansen Brothers

Christiansen Brothers, Salt Lake City, report delivery of excellent Dumpcrete Concrete on several widely separated foundation pours for the University of Utah. Hauls ranged up to a mile. The Dumpcretes discharged slowly into buggies and fast into forms, as required. "We found no segregation or bleeding," writes Rolf Christiansen, "and the units functioned in a thoroughly satisfactory manner."

Every day more and more concrete men are recognizing the advantages of the Dumpcrete. It's delivering low-cost concrete from Vermont to Oregon . . . in Canada, Hawaii and Panama.

You'll want to learn about the economical Dumpcrete, too. Write now for interesting money-saving facts.



**The Dumpcrete Body**

Lightweight, watertight, loads fast, dumps fast or slow, places anywhere, costs less to buy and run. Ideal for hauling aggregate, coal and earth.

* * *

*** Dumpcrete Concrete**

is central-mix air-entrained concrete hauled and placed with the speedy, low-cost Dumpcrete. Provides top-quality, plastic, workable and non-segregating concrete, saving up to $1.00 per yard.

DUMPCRETE DIVISION
MAXON CONSTRUCTION CO., INC.
437 Talbott Bldg., Dayton 2, Ohio

Packer feet strike 7000 blows per minute in this new model of a well-known block machine. With the exception of stripping, the entire operation is power driven.

of chrome molybdenum steel, with fully enclosed roller bearings.

The Pak-Crete mechanism delivers a gravity feed charge to the mold box, the surplus being returned to the hopper by the feeder. The top of the block is rolled smooth by a polished steel roller. A single lever operates the complete packing cycle.

Stripping is accomplished by a light pressure on the lever. All stripping mechanism, including the all-steel plates welded to the stripping base and supporting the cored pallets in the mold box, are connected with the packing-head mechanism. The machine requires a 5-hp. motor. "Limit switch" control automatically stops and starts the motor between each operating cycle.

### ● Hydroelectric Truck

The hydroelectric Model K motorized lift truck, a product of Lift Trucks, Inc., 2425 Spring Grove Avenue, Cincinnati 14, O., is made in pallet and platform styles in a variety of sizes, all having a 4,000-lb. capacity. All have two forward speeds and two reverse, with dynamic braking.

Important features include the Steubing two-wheel front drive and the "Steubing Power Package," especially designed for industrial truck service. Speed control is obtained without the use of resistors, thus saving battery energy. The entire unit—motor, drive and controller—can be removed from the frame like an outboard motor. All speeds and the brake are controlled by three push-buttons.

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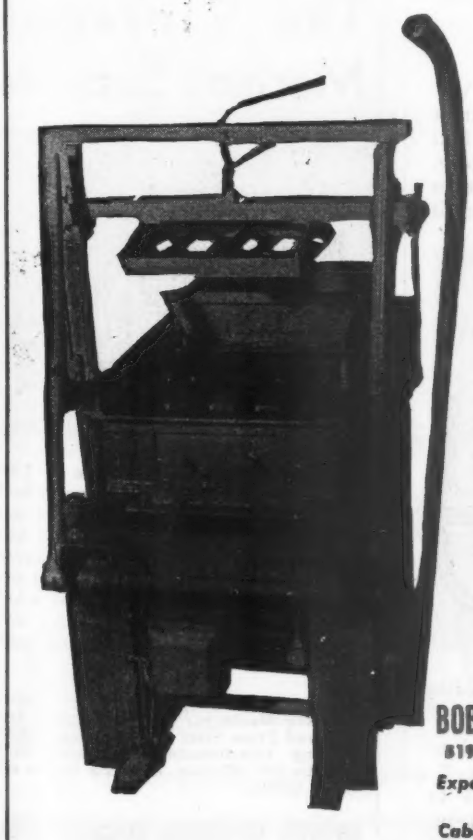
The Roy Darden Industries, Inc., Bona Allen Bldg., Atlanta, Ga., have been appointed sole distributors for Kay-Tite in the state of Mississippi. Kay-Tite is a protective coating for porous masonry.

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**QUALITY BLOCKS PER HOUR WITH THE GRAVELEY BETTER-BUILT CORONA BLOCK MACHINE**

● Sturdy
● Efficient
● Adaptable

*There is one in operation near you . . . see it . . . before you buy.*

**OTHER GRAVELEY MACHINERY**

- Four other complete plants, 125 to 800 blocks per hour.
- Concrete Mixers—6 to 28 cu. ft. capacities—or larger to your specifications.
- Hoppers • Conveyors • Lift Trucks
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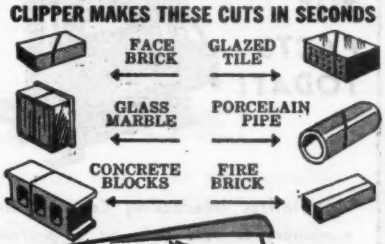
With the exclusive Clipper design, proven throughout the world and guaranteed to provide the fastest cutting speed and the lowest cutting costs.

DUSTLESS MASONRY CUTTING so fast and easy. Just turn on the circulating water system and slice through the hardest masonry materials. Foot Pedal control for varying material sizes or lock the cutting head at a set position, whichever is desired.

**CLIPPER MAKES THESE CUTS IN SECONDS**

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for block makers

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The principle of 7000 short stroke, power controlled blows per minute, produces a concrete block of HIGH compressive strength and LOW absorption, with LESS cement. Write for Bulletin.

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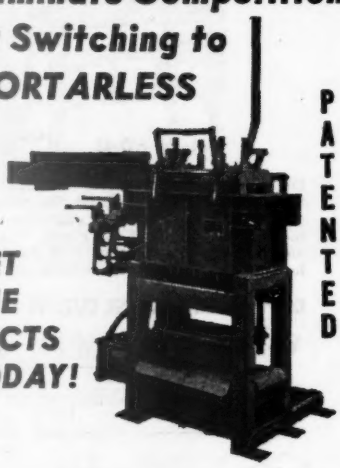

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**Mortarless *Interlocking* Concrete Block machinery is sold only on a protected territory basis—you are the *only* producer of these patented units in your area. Mortarless units interlock, lay up perfectly, are strong and durable, require no mortar, can be erected with unskilled labor. Approved by building codes, even in Florida and California where hurricanes and earthquakes occur. For details, write:**

**Mortarless Tile & Machine Co.**
2623 Riverside Drive, Los Angeles 26, Cal.


## ● Plain Pallet Block Machine

This fully automatic, plain pallet, hydraulic-operated vibrator type block machine will produce two 8- by 8- by 16-in. equivalents every 15 seconds. Pallets measure 18 in. square, a fact which permits the making, with proper mold box

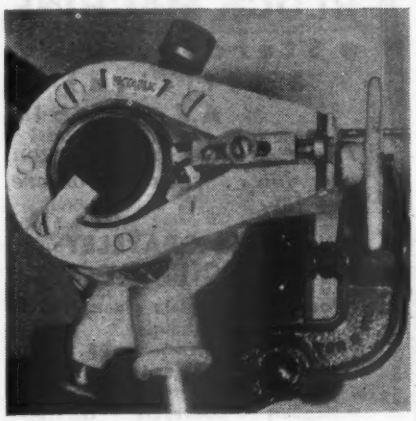
New plain-pallet machine produces two 8-in. units every 15 seconds.

and presser head, of any block or combination of blocks within this size range.

An off-bearing hoist removes two pallets at one time. The mold box is so designed that any combination of blocks which can be made in the same overall dimensions are made in the same box, only cores and plates being changed. Bob Graveley Industries, Inc., Orlando, Florida.

## ● Pipe Groover

A new device known as the "Vic-Groover," which may be operated either by hand or power, grooves pipe in half the time required for threading pipe. Cutting perfect grooves to the proper depth automatically, the Vic-Groover is

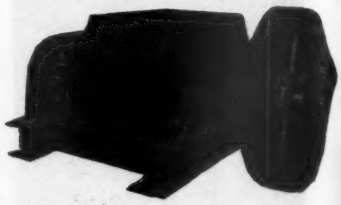


Groover halves time required for threading pipes.

light in weight and is easily carried to isolated locations for field grooving.

The groover is available in sizes to accommodate pipe sizes of from ¾ in. to 4 in. The Victaulic Company of America, 30 Rockefeller Plaza, New York 20, New York.

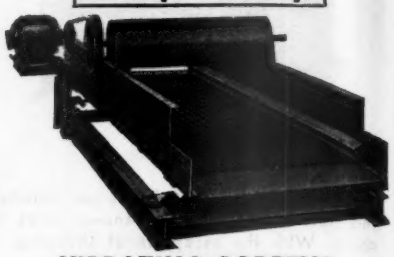

**CINDER CRUSHERS FOR BLOCK MAKERS**



10 to 20 ton per hour capacity **$474**

25 to 50 ton per hour capacity **$1074**

***Prompt Delivery***



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For almost any type of screening operation, wet or dry. Makes your product more uniform and of higher quality.

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129 Bellview Avenue
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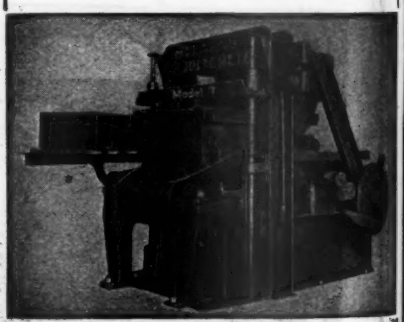
**The Vibration Machine Supreme**



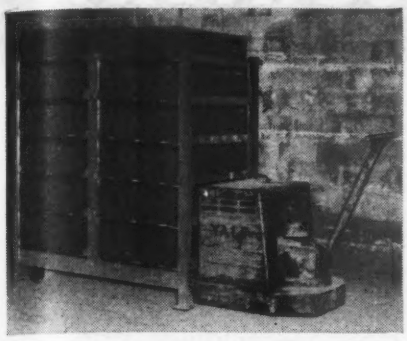
**Vibration under pressure — 7,200 blows per minute—and ruggedly built to give long life, the Joltcrete machine is the choice of the wise concrete-products operator. Produces clean-cut, high strength units in any size, and gets the most out of a bag of cement. Built in three sizes with capacities of 7 to 9 standard units per minute.**

**Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast iron and Press Steel pallets. Straublox oscillating Attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.**

**ANCHOR CONCRETE MACHINERY CO.**
**G. M. Frisl, Manager** **Columbus, Ohio**

## For Palletized Loads

With the addition of a new tilting fork "Worksaver" and a new nontilting fork "Worksaver," the Yale line of Worksaver electric lift trucks now includes seven different models. The pallet model, which is illustrated, will accommodate



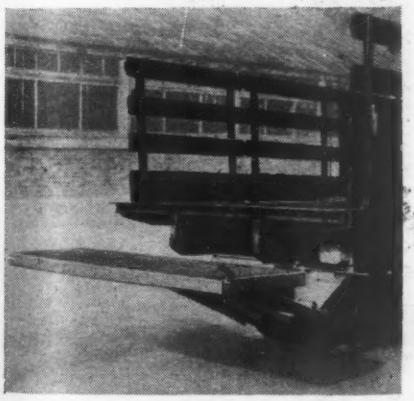
Non-tilting fork truck handles loads up to 4,000 lbs.

multi-unit palletized loads weighing up to 4000 lbs. The Yale & Towne Manufacturing Company, 4530 Tacony St., Philadelphia 24, Pennsylvania.

## Tail Gate Truck Loader

A low-priced hydraulic tail gate loader for trucks has been introduced by the Day Company, 306 W. 69th St., Chicago, builders of hydraulic lifts.

The lift platform operates over the full distance from ground to truck-floor level, raising and lowering loads up to



Lift platform operates from ground to truck floor level.

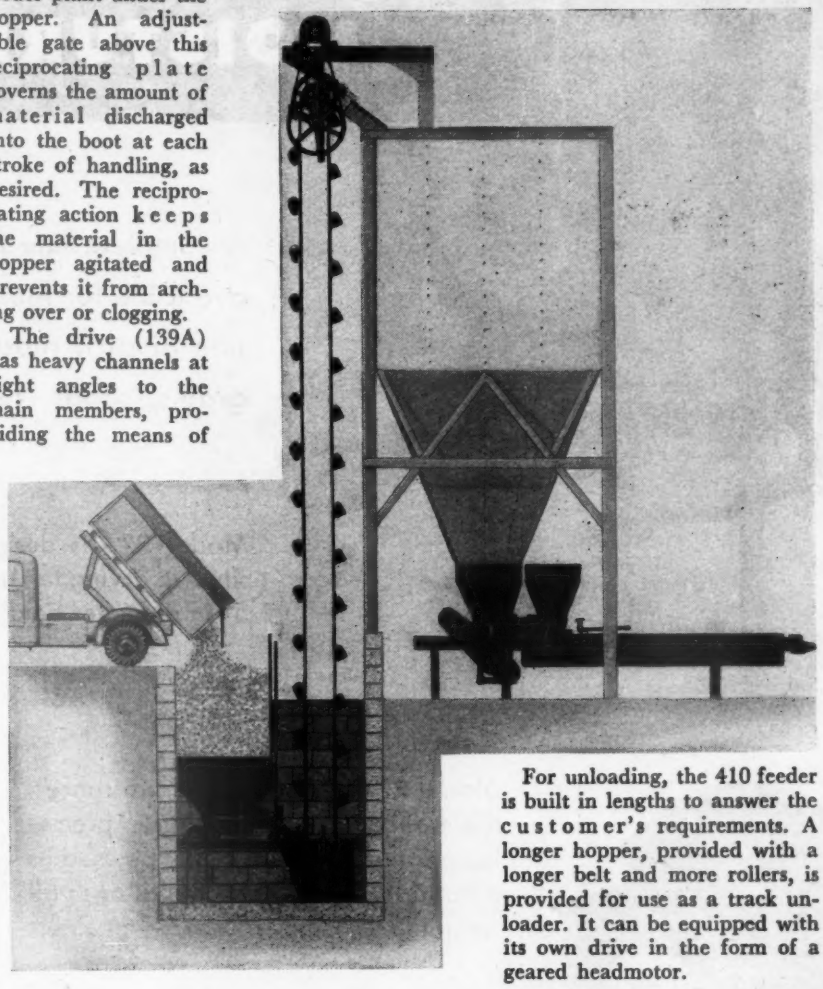
1200 pounds. The platform remains level throughout its entire travel arc, and swings up to serve as a tail gate when the truck is on the road. The hydraulic pump is driven from the truck's standard power take-off and is controlled by a lever, or the pump can be operated with a hand lever.

The unit—which fits most standard 1½-ton trucks—is furnished in a complete package, and takes only a few minutes to install. Distribution will be through established truck dealers, according to Day Company officials. Units are now in production and available for immediate delivery.

## Feeder and Elevator

The Kent 410 feeder, operating with the 139A Kent elevator, is driven by the elevator chain or belt which transmits power through a crank to a reciprocating feeder plant under the hopper. An adjustable gate above this reciprocating plate governs the amount of material discharged into the boot at each stroke of handling, as desired. The reciprocating action keeps the material in the hopper agitated and prevents it from arching over or clogging.

The drive (139A) has heavy channels at right angles to the main members, providing the means of attaching the elevator to the bin. The unit is driven by electric motor through V-belts; all shafts revolve on pillow block bearings, fitted with pressure grease fittings.



For unloading, the 410 feeder is built in lengths to answer the customer's requirements. A longer hopper, provided with a longer belt and more rollers, is provided for use as a track unloader. It can be equipped with its own drive in the form of a geared headmotor.


NEW LOWER PRICES ON ENTIRE EDGAR LINE!

Lower manufacturing costs have made possible a substantial reduction in the price of all equipment in the proven Edgar Block-Making Machinery Line, including . . . Edgar's Vibra Shaker, Edgar's Mixer, Edgar's Hopper, Edgar's Mud Conveyor.

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There's a new item on the Edgar line . . . the Edgar Masonry Saw. This saw will enable you to give faster, more profitable, satisfactory service to your customers.

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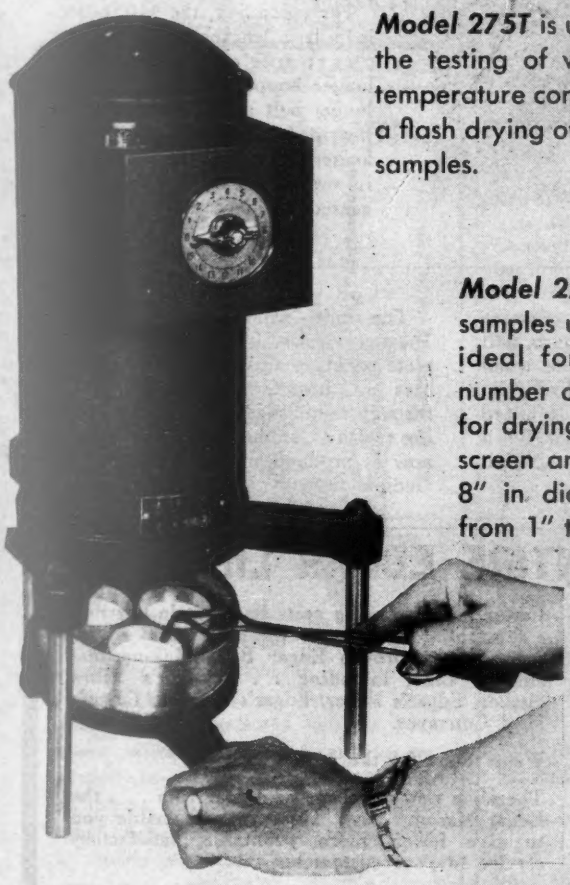
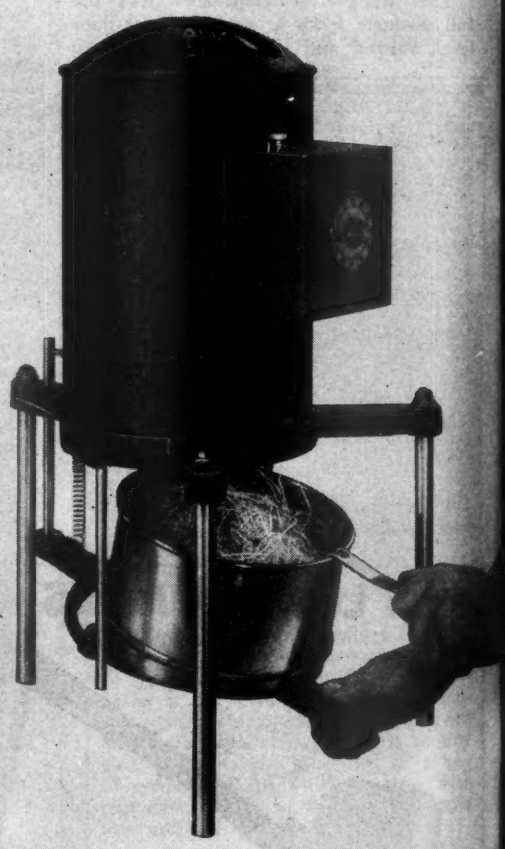
A complete line of Dietert-Detroit Moisture Tellers is available for the rapid, accurate moisture determination of such substances as chemicals, foods, fabrics, grains, sands, fuels, clays, semiliquids and others.

***Model 275*** is designed for materials not sensitive to drying temperatures. It has a drying pan 5" in diameter holding up to 100 gram samples.



***Model 275T*** is used for all substances, the testing of which requires precise temperature control. It may be used as a flash drying oven for liquids or small samples.

***Model 278T*** is used for bulky samples up to 500 grams. It is ideal for handling a large number of liquid samples and for drying materials in the wet screen analysis. The pans are 8" in diameter and may be from 1" to 4" in depth.



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